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2.4.5 Benthos

2.4.5.1 Objectives

No change in objectives has occurred since Progress Report 3. See section 2.4.5.1 of Progress Report 3 for specific objectives.

2.4.5.2 Methods

The methods reported in section 2.4.5.2 of Progress Reports 2 and 3 remain unchanged, with the exception that the D-frame net was utilized during the May - June 1975 sampling of the White River. See section 2.4.5.2 of Progress Reports 2 and 3 for specific methods used in benthos sampling and analysis.

2.4.5.3 Results

Appendix C-12-1 lists the 118 benthic taxa observed in samples taken during April 1975 and Appendix C-13-1 lists the 92 taxa found during the May - June sampling. Appendices C-12-2 and C-13-2 present the quantitative benthos data from April and May - June 1975. At the headwater stations during both sampling periods, the most abundant taxa included Chironomidae, Amphipoda, Nematoda, Oligochaeta, Baetidae, Ceratopogonidae, Tipulidae, and Simuliidae. At tract stations, Ceratopogonidae, Nematoda, Baetidae, Plecoptera, and Oligochaeta were most abundant. In Yellow Creek, Oligochaeta, Ceratopogonidae, Acari, Chironomidae, Nematoda, and Simuliidae were present in greatest abundance. In the White River the most abundant taxa during both sampling periods belonged to the Chironomidae, Ephemerellidae, Tricorythidae, Oligochaeta, Plecoptera, and Simuliidae.

2.4.5 - Benthos Data

APPENDIX C-11-1

DENSITIES OF DRIFT MACROINVERTEBRATES
OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

APPENDIX C-11-1

DRIFT MACROINVERTEBRATES OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES, APRIL 1975[1].
(Organisms/m^3; Data obtained from zooplankton collections.)

	Station / Replicate					
	1		2		3	
	A	B	A	B	A	B
Nematoda	150	440	20	150	40	40
Oligochaeta		60	50	100	710	580
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae					30	30
Chironomidae	30	80	150	60	600	330
Simuliidae		10				30
Diptera Larvae (misc)						
Ephemeroptera	90			30		10
Plecoptera						10
Trichoptera						

[1]Stations 6, 10-12 and 15-18 were dry at the time of sampling.

APPENDIX C-11-1

DRAFT MACROINVERTEBRATE SAMPLING DATA SHEET
BENTHOS ABUNDANCE AND DIVERSITY STUDIES, APRIL 1972
(Department of Fish and Game; Data obtained from zooplankton collections.)

	Station											
	Replicate											
	1			2			3			4		
	X			X			X			X		
Mammalia	100			40			120			40		
Oligochaeta	80			80			100			120		500
Arthropoda												
Insecta												
Coleoptera												
Diptera												
Crustacea												
Amphipoda	30			60			150			30		300
Chironomidae												
Simuliidae				10								10
Ostracoda (sim)												
Gammaridae												
Cladocera												
Hydracarina												

[1] Stations 6, 10-12 and 15-19 were dry at the time of sampling.

APPENDIX C-11-1 (Continued)

	Station 4 A	Station 4 B	Station 5 A	Station 5 B
Nematoda	20	110	20	50
Oligochaeta	420	890	110	110
Arthropoda				
Insecta				
Coleoptera				
Collembola				
Diptera				
Ceratopogonidae		30	10	20
Chironomidae	40	90	440	300
Simuliidae		10		70
Diptera Larvae (misc)				
Ephemeroptera	50	30		
Plecoptera	10	30		10
Trichoptera			10	

APPENDIX C-11-1 (Continued)

	Station 7 A	Station 7 B	Station 8 A	Station 8 B	Station 9 A	Station 9 B
	Replicate					
Nematoda		60		40		40
Oligochaeta		580	80	1,010		3,130
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae				20		
Chironomidae	10		80	40	250	200
Simuliidae					10	
Diptera Larvae (misc)						
Ephemeroptera			20	150	110	200
Plecoptera			10			10
Trichoptera						

APPENDIX C-11-1 (Continued)

	Station 13 Replicate A	Station 13 Replicate B	Station 14 Replicate A	Station 14 Replicate B
Nematoda	110	1,370	40	150
Oligochaeta	2,430	4,760	70	30
Arthropoda				
Insecta				
Coleoptera				
Collembola			10	
Diptera				
Ceratopogonidae	180	80	20	50
Chironomidae	1,110	2,080	710	1,420
Simuliidae		20		
Diptera Larvae (misc)				
Ephemeroptera		50	450	800
Plecoptera		10		
Trichoptera				

APPENDIX C-11-1 (Continued)

	Station Replicate					
	19		20		21	
	A	B	A	B	A	B
Nematoda	20	10	10	30	50	660
Oligochaeta	40	50	70	50	60	50
Arthropoda						
Insecta						
Coleoptera			10			
Collembola					10	
Diptera						
Ceratopogonidae	170	160	20		40	120
Chironomidae	970	900	1,040	1,350	540	850
Simuliidae	30		10	10		
Diptera Larvae (misc)						
Ephemeroptera			20			
Plecoptera						
Trichoptera	20					

APPENDIX C-11-1 (Continued)

	Station 22 A	Station 22 B	Station 23 A	Station 23 B	Station 24 A	Station 24 B
Nematoda	30	30		20		60
Oligochaeta	20	50	170	60	10	150
Arthropoda						
Insecta						
Coleoptera						
Collembola	30	10				
Diptera						
Ceratopogonidae	10	20				20
Chironomidae	320	340	50	50	10	100
Simuliidae	10				10	
Diptera Larvae (misc)						
Ephemeroptera			40	10	20	20
Plecoptera						
Trichoptera						

APPENDIX C-11-1 (Continued)

	Station / Replicate					
	25		26		27	
	A	B	A	B	A	B
Nematoda		10	10	10	30	40
Oligochaeta	8	40	100	40	140	120
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae						10
Chironomidae	100	130	40	70	60	30
Simuliidae	10			10	10	
Diptera Larvae (misc)						
Ephemeroptera	40	50	10	10	20	
Plecoptera						
Trichoptera						

APPENDIX C-11-1(Continued)

	Station Replicate					
	28		29		30	
	A	B	A	B	A	B
Nematoda	10	70	20	100	10	40
Oligochaeta	100	70	60	30	20	110
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae						
Chironomidae	80	30	50	50	10	100
Simuliidae			10			
Diptera Larvae (misc)						
Ephemeroptera	10	10	20	10		30
Plecoptera						
Trichoptera				10		

APPENDIX C-11-1 (Continued)

	Station / Replicate					
	31		32		33	
	A	B	A	B	A	B
Nematoda	30	110	30		10	
Oligochaeta	110	60	150	10	40	90
Arthropoda						
Insecta						
Coleoptera						
Collembola						10
Diptera						
Ceratopogonidae						20
Chironomidae	40	60	70	90	40	80
Simuliidae						20
Diptera Larvae (misc)						
Ephemeroptera			10	20		50
Plecoptera						
Trichoptera						10

APPENDIX C-11-1 (Continued)

	Station 34 A	Station 34 B	Station 35 A	Station 35 B
	Replicate			
Nematoda				
Oligochaeta	40	40	70	130
Arthropoda				
Insecta				
Coleoptera				
Collembola				
Diptera				
Ceratopogonidae				
Chironomidae	10	50		70
Simuliidae			20	
Diptera Larvae (misc)				
Ephemeroptera		10	10	10
Plecoptera				
Trichoptera				

APPENDIX C-11-2

DENSITIES OF DRIFT MACROINVERTEBRATES
OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-11-2

DENSITIES OF DRIFT MACROINVERTEBRATES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975
(Organisms/m^3; Data obtained from zooplankton collections.)

	Station Replicate					
	1		2		3	
	A	B	A	B	A	B
Nematoda		10		70	930	380
Oligochaeta		20	40	20	2,010	900
Arthropoda						
Insecta						
Coleoptera					10	
Collembola						
Diptera						
Ceratopogonidae						10
Chironomidae	100	150	200	60	3,270	2,650
Simuliidae		10				10
Tipulidae					10	
Diptera Larvae (misc)						20
Ephemeroptera	300	170				30
Plecoptera						10
Trichoptera						

[1]Stations 10-12 and 15-18 were dry at time of sampling.

APPENDIX C-11-2 (Continued)

	Station 4		5		6	
	Replicate A	B	A	B	A	B
Nematoda	210	180	30	130	190	30
Oligochaeta	250	40	60	40	170	20
Arthropoda						
Insecta						
Coleoptera				10		
Collembola	10	40				10
Diptera						
Ceratopogonidae		10		30	20	
Chironomidae	90		1,320	1,840	230	120
Simuliidae			100	180		
Tipulidae						
Diptera Larvae (misc)						
Ephemeroptera			10		10	
Plecoptera						
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station					
	Replicate					
	7		8		9	
	A	B	A	B	A	B
Nematoda	1,980	620	10	20	340	1,150
Oligochaeta	4,200	2,670	80	20	8,420	8,850
Arthropoda						
Insecta						
Coleoptera		10				
Collembola					20	
Diptera						
Ceratopogonidae	40	20			40	20
Chironomidae	860	660	80	140	2,880	3,200
Simuliidae		20				
Tipulidae						
Diptera Larvae (misc)						10
Ephemeroptera	20	40			10	10
Plecoptera	50					
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station 13 A	Station 13 B	Station 14 A	Station 14 B
Nematoda	250	60	260	230
Oligochaeta	300	80	2,490	630
Arthropoda				
Insecta				
Coleoptera			120	
Collembola	10			
Diptera				
Ceratopogonidae				30
Chironomidae	470		1,180	810
Simuliidae			100	60
Tipulidae				
Diptera Larvae (misc)				
Ephemeroptera			150	60
Plecoptera				10
Trichoptera			40	

APPENDIX C-11-2 (Continued)

	Station Replicate					
	19		20		21	
	A	B	A	B	A	B
Nematoda			10	10	30	
Oligochaeta	120	920	10			
Arthropoda						
Insecta						
Coleoptera			10			
Dytiscidae						20
Collembola	10					
Diptera						
Ceratopogonidae			10		40	70
Chironomidae	460	400	400	250	380	420
Simuliidae	90	70	70	10	10	20
Tipulidae						
Diptera Larvae (misc)						
Ephemeroptera		190				
Plecoptera						
Trichoptera	10					

APPENDIX C-11-2 (Continued)

	Station 22		23		24	
	Replicate A	B	A	B	A	B
Nematoda			70	70	10	40
Oligochaeta			30	70	10	
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae		20				
Chironomidae	70	150		40	30	
Simuliidae						
Tipulidae						
Diptera Larvae (misc)			10			
Ephemeroptera			30	10	20	
Plecoptera						
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station 25		26		27	
	Replicate A	B	A	B	A	B
Nematoda	70	30	40		90	80
Oligochaeta		20	10	10	10	10
Arthropoda						
Insecta						
Coleoptera						
Collembola			10			
Diptera						
Ceratopogonidae						
Chironomidae	10	10	20		30	10
Simuliidae	10		10			
Tipulidae						
Diptera Larvae (misc)						
Ephemeroptera	10	10		20	10	
Plecoptera						
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station / Replicate					
	28		29		30	
	A	B	A	B	A	B
Nematoda	50	60	30	150	30	
Oligochaeta	10			10		
Arthropoda						
Insecta						
Coleoptera						
Collembola						
Diptera						
Ceratopogonidae						
Chironomidae	20	10	50		40	
Simuliidae						
Tipulidae						
Diptera Larvae (misc)						
Ephemeroptera	10		10			20
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station / Replicate					
	31		32		33	
	A	B	A	B	A	B
Nematoda	10	30	10	10	50	20
Oligochaeta					10	20
Arthropoda						
Insecta						
Coleoptera		10				
Collembola						
Diptera						
Ceratopogonidae						
Chironomidae	20		10		20	10
Simuliidae						
Tipulidae						
Diptera Larvae (misc)						
Ephemeroptera		10	10		10	
Plecoptera						
Trichoptera						

APPENDIX C-11-2 (Continued)

	Station 34 Replicate A	Station 34 Replicate B	Station 35 Replicate A	Station 35 Replicate B
Nematoda	20	40	20	40
Oligochaeta		10	20	
Arthropoda				
Insecta				
Coleoptera				
Collembola				
Diptera				
Ceratopogonidae				
Chironomidae		10	20	20
Simuliidae				
Tipulidae				
Diptera Larvae (misc)				
Ephemeroptera		50	10	40
Plecoptera				
Trichoptera				

APPENDIX C-11-3

DENSITIES OF DRIFT MACROINVERTEBRATES OBSERVED
DURING RBOSP AQUATIC BASELINE STUDIES
JULY - AUGUST 1975

APPENDIX C-11-3

DENSITIES OF DRIFT MACROINVERTEBRATES OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, JULY - AUGUST 1975
(Organisms/m^3; data obtained from zooplankton collections)

	Station Replicate		
	1 A	2 A	3 A
Nematoda		400	2,000
Oligochaeta		20	550
Arthropoda			
Insecta			
Coleoptera			20
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae	810	480	570
Simuliidae	90	380	20
Tipulidae		20	
Diptera Larvae (misc)	60	10	30
Ephemeroptera	230	60	
Plecoptera		20	
Trichoptera		10	20

[1]Stations 6, 10-12 and 16 were dry at time of sampling.

APPENDIX C-11-3 (Continued)

	Station Replicate 4 A	5 A
Nematoda		
Oligochaeta	90	110
Arthropoda		
Insecta		
Coleoptera		
Collembola	50	
Diptera		
Ceratopogonidae	10	
Chironomidae	570	550
Simuliidae	200	10
Diptera Larvae (misc)		
Ephemeroptera	20	50
Plecoptera		
Trichoptera	20	30

APPENDIX C-11-3 (Continued)

	Station / Replicate 7 / A	8 / A	9 / A
Nematoda			400
Oligochaeta	10	60	200
Arthropoda			
Insecta			
Coleoptera			
Collembola			
Diptera			
Ceratopogonidae	20		10
Chironomidae	580	220	760
Simuliidae			10
Tipulidae			10
Diptera Larvae (misc)	30	10	20
Ephemeroptera	80	10	
Plecoptera	10		
Trichoptera			

APPENDIX C-11-3 (Continued)

	Station Replicate		
	13 A	14 A	15 A
Nematoda			600
Oligochaeta	70	200	2,230
Arthropoda			
Insecta			
Coleoptera	10		
Collembola			20
Diptera			
Ceratopogonidae		10	20
Chironomidae	780	530	1,070
Simuliidae	10	40	10
Diptera Larvae (misc)	10		30
Ephemeroptera	10	30	20
Plecoptera			
Trichoptera	10	20	

APPENDIX C-11-3 (Continued)

	Station Replicate 17 A	Station Replicate 18 A
Nematoda	200	400
Oligochaeta	50	60
Arthropoda		
Insecta		
Coleoptera	10	
Collembola		2,600
Diptera		
Ceratopogonidae		
Chironomidae	50	70
Simuliidae		
Diptera Larvae (misc)		
Ephemeroptera		
Plecoptera		
Trichoptera		10

APPENDIX C-11-3 (Continued)

	Station Replicate		
	19 A	20 A	21 A
Nematoda		200	
Oligochaeta		60	
Arthropoda			
Insecta			
Coleoptera			
Collembola			
Diptera			
Ceratopogonidae		30	50
Chironomidae	120	120	60
Simuliidae	60	40	
Diptera Larvae (misc)			
Ephemeroptera			40
Hemiptera			
Notonectidae	10		
Plecoptera			
Trichoptera	10	20	

APPENDIX C-11-3 (Continued)

	Station Replicate 22 A	23 A	24 A
Nematoda	200		600
Oligochaeta		30	20
Arthropoda			
Insecta			
Coleoptera			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae	140	10	110
Simuliidae			20
Diptera Larvae (misc)			10
Ephemeroptera	80		10
Hemiptera			
Notonectidae	10		
Plecoptera	10		20
Trichoptera	10		20

APPENDIX C-11-3 (Continued)

	Station Replicate 25 A	 26 A	 27 A
Nematoda	1,200	600	
Oligochaeta	40	20	10
Arthropoda			
Insecta			
Coleoptera			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae	140	110	
Simuliidae	10		
Diptera Larvae (misc)			
Ephemeroptera	40	50	
Plecoptera		10	
Trichoptera		10	

APPENDIX C-11-3 (Continued)

	Station 28 Replicate A	Station 29 Replicate A	Station 30 Replicate A
Nematoda	800	400	800
Oligochaeta	60	40	
Arthropoda			
Insecta			
Coleoptera			
Collembola			20
Diptera			
Ceratopogonidae			10
Chironomidae	20	30	130
Rhagionidae			10
Simuliidae	10		
Diptera Larvae (misc)			
Ephemeroptera		10	50
Plecoptera			10
Trichoptera	10		40

APPENDIX C-11-3 (Continued)

	Station Replicate 31 A	 32 A	 33 A
Nematoda	200	400	400
Oligochaeta	90	10	20
Arthropoda			
Insecta			
Coleoptera			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae	50	40	70
Simuliidae		10	10
Diptera Larvae (misc)			
Ephemeroptera	10		10
Plecoptera			
Trichoptera	10		10

APPENDIX C-11-3 (Continued)

	Station Replicate 34 A	35 A
Nematoda	600	2,800
Oligochaeta	20	
Arthropoda		
Insecta		
Coleoptera		
Collembola		
Diptera		
Ceratopogonidae		
Chironomidae	80	10
Simuliidae		10
Diptera Larvae (misc)		
Ephemeroptera	10	
Plecoptera		
Trichoptera	70	

APPENDIX C-12-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

APPENDIX C-12-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES, APRIL 1975

Platyhelminthes
  Tubellaria
    Tricladia

Nematoda

Mollusca
  Gastropoda
      Lymnea Lamarck
      Physa Draparnaud

Annelida
  Oligochaeta
    Aeolostomatidae
    Enchytraeidae
    Haplotaxidae
      Haplotaxis
    Lumbriculidae
    Naididae
      Nais behingi
      Nais elinguis
      Nais sp.
      Pristina
    Tubificidae
      Ilyodrilus templetoni
      Limnodrilus claparedeianus
      Limnodrilus hoffmeisteri
      Limnodrilus spiralis
      Limnodrilus udekemianus
      Limnodrilus sp. 1
      Tubifex tubifex
    Unidentified Tubificidae sp. 1
    Immature Tubificidae with capilliform chaetae
    Immature Tubificidae without capilliform chaetae
     Rhyacodrilinae
     Rhyacodrilinae sp.
  Hirundinea
      Helobdella stagnalis (Linnaeus)

Arthropoda
  Crustacea
    Ostracoda
    Amphipoda
      Hyallela azteca (Saussure)
  Insecta
    Collembola
    Ephemeroptera
      Baetidae

- Baetis Leach
- Callibaetis Eaton
- Ephemerellidae
  - Ephemerella Walsh
- Heptageniidae
  - Epeorus Eaton
  - Rhithrogena Eaton
- Leptophlebiidae
  - Paraleptophlebia
- Tricorythidae
  - Tricorythodes Ulmer

Odonata
- Coenagrionidae
  - Enallagma Charpentier
- Gomphidae

Plecoptera
- Capniidae
  - Capnia Pictet
- Isoperlidae
  - Isoperla Banks
- Perlodidae
  - Isogenoides Klapalek

Coleoptera
- Dytiscidae
  - Deronectes Sharp
  - Derovatellus Sharp
  - Oerodytes Seidlitz
- Elmidae
  - Dubiraphia Sanderson
  - Microcylloepus
  - Zaitzevia Champion

Trichoptera
- Brachycentridae
  - Brachycentrus pupae Curtis
- Hydropsychidae
  - Hydropsyche Pictet
- Hydroptilidae
  - Hydroptila Dalman
- Limnephilidae
  - Grammotaulius Kolenati
  - Hesperophylax Banks
  - Limnephilus Leach

Lepiodoptera
- Pyralidae

Diptera

Diptera pupae

Diptera larvae (unidentified)
- Ceratopodonidae
- Culicidae

Chironomidae
- Tanypodinae
  - Conchapelopia
  - Psectrotanypus
- Podonominae
  - Boreochlus
- Diamesinae
- Diamesinae sp. 1
  - Diamesa
  - Monodiamesa
  - Odontomesa
  - Pottastia
  - Pseudodiamesa
- Orthocladiinae
- Orthocladiinae sp. 2
- Orthocladiinae sp. 3
  - Chaetocladius
  - Corynoneura
  - Cricotopus
  - Cricotopus (Cricotopus)
  - Cricotopus (Cricotopus) trifascia
  - Cricotopus (Isocladius)
  - Diplocladius
  - Eukieferiella
  - Orthocladius
  - Paracladius
  - Parakiefferiella
  - Parametriocnemus
  - Paraphaenocladius
  - Pseudosmittia
  - Smittia
  - Thienemanniella
- Chironominae
  - Chironomus
  - Cryptochironomus
  - Harnischia
  - Microtendipes
  - Parachironomus
  - Paracladopelma
  - Paratendipes
  - Phaenopsectra (Phaenopsectra)
  - Polypedilium (tripodura grp)
  - Pseudochironomus
  - Stichtochironomus
  - Cladotanytarsus
  - Micropsectra
  - Rheotanytarsus

Dolichopodidae
- Hydrophorus Fallen

Empididea
Clinocera Meigen
Hemerodromia Meigen
Muscidae
Limnophora aquifrons Stein
Limnophora discreta Stein
Psychiodidae
Percoma Walker
Telmatascopus Eaton
Rhagionidae
Atherix variegata Walker
Simuliidae
Arachnoidea
Acari
Stratiomyidae
Euparyphus Gerstaecker
Stratiomys Geoffrey
Tabanidae
Chrysops Meigen
Tabanus Linnaeus
Tipulidae
Dicranota Zetterstedt
Hexatoma Latreille
Holorusia Loew
Limnophila Macquart
Ormosia Rondani
Pedecia Latreille
Arachnoidea
Acari

APPENDIX C-12-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, APRIL 1975

SITE = 01 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	235	145	18
ARTHROPODA			
ARACHNOIDEA			
ACARI			18
INSECTA			
COLEOPTERA			
DYTISCIDAE			
DERONECTES SP			
LARVAE			109
TRICHOPTERA			
LIMNEPHILIDAE			
HESPEROPHYLAX SP			
LARVAE	18		18
DIPTERA			
TIPULIDAE			
UNIDENTIFIED			
LARVAE		18	
DICRANOTA SP			
LARVAE			36
PEDICIA SP			
LARVAE			36
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	36		344
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	36		

APPENDIX C-12-2 (Continued)

SITE = 01 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	3258	724	54
PARAMETRIOCNEMUS SP			
LARVAE		109	453
PSEUDOSMITTIA SP			
LARVAE	36		
SMITTIA SP			
LARVAE		18	
ORTHOCLADIINAE SP. 2			
LARVAE			54
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE	54		833
STRATIOMYS SP			
LARVAE		18	36
DOLICHOPODIDAE			
HYDROPHORUS SP			
LARVAE		18	

2.4.5.212

APPENDIX C-12-2 (Continued)

SITE = 02 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA		54	
ANNELIDA			
OLIGOCHAETA			
AEOLOSOMATIDAE			
UNIDENTIFIED			
----------	18		
HAPLOTAXIDA			
HAPLOTAXIDAE			
UNIDENTIFIED			
----------			36
ENCHYTRAEIDAE	91	36	18
NAIDIDAE			
NAIS SP			
---- --			36
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
------ --			
LARVAE	54	18	18
PLECOPTERA			
EUHOLOSMATHA			
CAPNIIDAE			
CAPNIA SP			
------ --			
LARVAE		18	
COLEOPTERA			
DYTISCIDAE			
OREODYTES SP			
--------- --			
LARVAE	18		
TRICHOPTERA			
LIMNEPHILIDAE			
HESPEROPHYLAX SP			
------------ --			
LARVAE	109	18	18

APPENDIX C-12-2 (Continued)

SITE = 02 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
TIPULIDAE			
UNIDENTIFIED			
LARVAE		18	
ORMOSIA SP			
LARVAE		18	
DICRANOTA SP			
LARVAE		18	
HOLORUSIA SP			
LARVAE	308	326	290
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	54		18
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE		36	18
PODONOMINAE			
SUBFOSSILUS SP			
LARVAE		54	
DIAMESINAE			
DIAMESA SP			
LARVAE	2643	4036	1412
ORTHOCLADIINAE			
CORYNONEURA SP			
LARVAE	72	145	

APPENDIX C-12-2 (Continued)

SITE = 02 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	507	91	109
ORTHOCLADIUS SP			
LARVAE	36	91	18
PARAPHAENOCLADIUS SP			
LARVAE	36	272	18
PARAMETRIOCNEMUS SP			
LARVAE	181	54	18
PSEUDOSMITTIA SP			
LARVAE	36		
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE		54	72
MICROPSECTRA SP			
LARVAE		91	145
STRATIOMYIDAE			
STRATIOMYS SP			
LARVAE		18	
ANTHOMYIIDAE			
LIMNOPHORA DISCRETA			
LARVAE		18	

APPENDIX C-12-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA		235	36
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	18		18
TUBIFICIDAE			
LIMNODRILUS UDEKEMIANUS	18		
NAIDIDAE			
NAIS SP	18		18
NAIS ELINGUIS			18
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	109		18
BAETIS SP			
LARVAE	217	923	145
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			
LARVAE		18	
TRICHOPTERA			
LIMNEPHILIDAE			
HESPEROPHYLAX SP			
LARVAE	36	18	

APPENDIX C-12-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		18	
TIPULIDAE			
ORYDSIA SP			
LARVAE			18
DICRANOTA SP			
LARVAE	36	18	
HOLORUSIA SP			
LARVAE	543	54	54
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	163	1140	36
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	54	434	36
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE		253	
PSECTROTANYPUS SP			
LARVAE	181	127	72
DIAMESINAE			
DIAMESA SP			
LARVAE		127	91

2.4.5.217

APPENDIX C-12-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		253	18
CORYNONEURA SP			
LARVAE			18
DIPLOCLADIUS SP			
LARVAE	91	507	54
EUKIEFFERIELLA SP			
LARVAE			145
ORTHOCLADIUS SP			
LARVAE	54	253	54
PARAPHAENOCLADIUS SP			
LARVAE	181	905	127
PSEUDOSMITTIA SP			
LARVAE	36		
CHIRONOMINAE			
PARACHIRONOMUS SP			
LARVAE			18
PARATENDIPES SP			
LARVAE	36		

APPENDIX C-12-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE	36		
MICROPSECTRA SP			
LARVAE	2190	10281	308
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	72	217	91
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE		72	
STRATIOMYS SP			
LARVAE	18		
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE	109	91	
LIMNOPHORA DISCRETA			
LARVAE			18

APPENDIX C-12-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	344	272	163
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	127	36	18
NAIDIDAE			
NAIS SP	109	199	127
NAIS ELINGUIS	18		
ARTHROPODA			
INSECTA			
COLLEMBOLA			18
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	3873		2570
BAETIS SP			
LARVAE	507	9319	1774
PLECOPTERA			
EUHOLOGNATHA			
CAPNIIDAE			
UNIDENTIFIED			
LARVAE	18		
CAPNIA SP			
LARVAE		18	

APPENDIX C-12-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE		36	
DIPTERA			
UNIDENTIFIED			
PUPAE		18	
TIPULIDAE			
PEDICIA SP			
LARVAE		18	
HOLORUSIA SP			
LARVAE		36	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	18	290	54
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	290	579	615
TANYPODINAE			
PSECTROTANYPUS SP			
LARVAE	54	670	
DIAMESINAE			
DIAMESINAE SP. 1			
LARVAE	434		308
DIAMESA SP			
LARVAE	253	471	253

2.4.5 221

APPENDIX C-12-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 16.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
CORYNONEURA SP			
LARVAE			109
DIPLOCLADIUS SP			
LARVAE	36		54
EUKIEFFERIELLA SP			
LARVAE	199	235	362
ORTHOCLADIUS SP			
LARVAE	326	634	308
PARAPHAENOCLADIUS SP			
LARVAE	434	272	688
PARAMETRIOCNEMUS SP			
LARVAE	1014	362	2987
PSEUDOSMITTIA SP			
LARVAE			54
THIENEMANNIELLA SP			
LARVAE		36	54
CHIRONOMINAE			
PARATENDIPES SP			
LARVAE		36	

2.4.5.222

APPENDIX C-12-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE	54	127	
MICROPSECTRA SP			
LARVAE	54	199	54
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	3928	3584	3783
UNIDENTIFIED			
PUPAE		4543	
SIMULIUM SP			
LARVAE			1394
STRATIOMYIDAE			
STRATIOMYS SP			
LARVAE		597	
EMPIDIDAE			
CLINOCERA SP			
LARVAE			18
HEMERODROMIA SP			
LARVAE			36
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE	18	109	18

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
PLATYHELMINTHES			
TURBELLARIA			
TRICLADIDA			
UNIDENTIFIED		18	
NEMATODA	3638	12851	5756
MOLLUSCA			
GASTROPODA			
BASOMMATOPHORA			
PHYSIDAE			
PHYSA SP	36	91	
ANNELIDA			
HIRUDINEA			
RHYNCHOBDELLIDA			
GLOSSIPHONIIDAE			
HELOBDELLA STAGNALIS	18	18	
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
ILYODRILUS TEMPLETONI	3964	2335	11204
LIMNODRILUS SP. 1	163		
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL	163	290	
LIMNODRILUS HOFFMEISTERI			
TYPICAL	326	290	815
LIMNODRILUS SPIRALIS	163		

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS UDEKEMIANUS	796	290	815
RHYACODRILINAE SP	326		
TUBIFEX TUBIFEX	326		1086
IMMATURES WITH CAP. CHAETAE SP	15674	18643	20779
IMMATURES W/O CAP. CHAETAE SP	25231	18933	22136
ARTHROPODA			
ARACHNOIDEA			
ACARI			18
CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA	977	163	670
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	109		18
BAETIS SP			
LARVAE	18	72	54

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			
LARVAE	36	109	18
ENALLAGMA SP			
LARVAE	18		
COLEOPTERA			
DYTISCIDAE			
DERONECTES SP			
LARVAE	18		
TRICHOPTERA			
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE	18		
HYDROPTILIDAE			
UNIDENTIFIED			
LARVAE		941	
HYDROPTILA SP			
LARVAE	959	163	308
LIMNEPHILIDAE			
GRAMMOTAULIUS SP			
LARVAE			18
HESPEROPHYLAX SP			
LARVAE	18		
LIMNEPHILUS SP			
LARVAE		18	

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		525	
TIPULIDAE			
HOLORUSIA SP			
LARVAE	18		18
PSYCHODIDAE			
TELMATOSCOPUS SP			
LARVAE		16	
PERICOMA SP			
ADULTS	18		
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	6281	15747	8018
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	1068		760
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	145	1177	109
PSECTROTANYPUS SP			
LARVAE	724	1466	217
DIAMESINAE			
DIAMESINAE SP. 1			
LARVAE			109

2.4.5.227

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	1593	3222	434
CHAETOCLADIUS SP			
LARVAE			217
CORYNONEURA SP			
LARVAE		290	
EUKIEFFERIELLA SP			
LARVAE	869	2045	109
ORTHOCLADIUS SP			
LARVAE	8833	12000	6082
PARACLADIUS SP			
LARVAE		887	
PARAKIEFFERIELLA SP			
LARVAE		579	
PARAPHAENOCLADIUS SP			
LARVAE		290	
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE	145	1177	217

APPENDIX C-12-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE	3765	4091	3258
RHEOTANYTARSUS SP			
LARVAE		887	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	11331	7512	4869
TABANIDAE			
UNIDENTIFIED			
LARVAE			18
TABANUS SP			
LARVAE		18	
EMPIDIDAE			
CLINOCERA SP			
LARVAE			109
HEMERODROMIA SP			
LARVAE	272	344	
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE		18	
LIMNOPHORA DISCRETA			
LARVAE			36

APPENDIX C-12-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA		18	
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	127	127	36
ARTHROPODA			
CRUSTACEA			
OSTRACODA		362	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	54	54	
BAETIS SP			
LARVAE	54		
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	18		
DIPTERA			
TIPULIDAE			
DICRANOTA SP			
LARVAE			54
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	109	326	36
CHIRONOMIDAE			
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE			18

APPENDIX C-12-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-4 COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	18		54
CORYNONEURA SP			
LARVAE		18	
ORTHOCLADIUS SP			
LARVAE			54
PARAPHAENOCLADIUS SP			
LARVAE	18	54	109
PARAMETRIOCNEMUS SP			
LARVAE		36	18
PSEUDOSMITTIA SP			
LARVAE	36	54	
ORTHOCLADIINAE SP. 2			
LARVAE	36		36
ORTHOCLADIINAE SP. 3			
LARVAE			18
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE	18		

APPENDIX C-12-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		18	

APPENDIX C-12-2 (Continued)

SITE = 08 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA		18	36
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	36	72	18
TUBIFICIDAE			
ILYODRILUS TEMPLETONI			18
LIMNODRILUS SP. 1		18	
NAIDIDAE			
NAIS SP	145	181	91
ARTHROPODA			
ARACHNOIDEA			
ACARI		18	
CRUSTACEA			
OSTRACODA		36	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	977		398
BAETIS SP			
LARVAE	326	1502	434

APPENDIX C-12-2 (Continued)

SITE = 06 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
HEPTAGENIIDAE			
EPEORUS SP			
LARVAE	72		18
RHITHROGENA SP			
LARVAE		18	
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	109	308	145
DIPTERA			
UNIDENTIFIED			
PUPAE		54	
TIPULIDAE			
HOLORUSIA SP			
LARVAE	18		
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	489	109	127
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	18		18
DIAMESINAE			
DIAMESA SP			
LARVAE	181	217	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		72	145

2.4.5.234

APPENDIX C-12-2 (Continued)

SITE = 08 SITE DESC = UK TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	54		
ORTHOCLADIUS SP			
LARVAE	54	145	36
PARAPHAENOCLADIUS SP			
LARVAE	181	2570	127
PARAMETRIOCNEMUS SP			
LARVAE	5267		2769
THIENEMANNIELLA SP			
LARVAE	54	181	
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE	36	54	36
ANTHOMYIIDAE			
LIMNOPHORA DISCRETA			
LARVAE	18	18	18

APPENDIX C-12-2 (Continued)

SITE = 09 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	253	344	54
ANNELIDA			
HIRUDINEA			
RHYNCHOBDELLIDA			
GLOSSIPHONIIDAE			
HELOBDELLA STAGNALIS		18	
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	634	778	1756
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP		163	
NAIDIDAE			
NAIS SP	11530	14951	9086
ARTHROPODA			
CRUSTACEA			
OSTRACODA		72	
INSECTA			
COLLEMBOLA			18
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	1068		1014
BAETIS SP			
LARVAE		869	923

2.4.5.236

APPENDIX C-12-2 (Continued)

SITE = 09 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE		18	
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE		18	
TRICHOPTERA			
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE		18	
DIPTERA			
UNIDENTIFIED			
PUPAE		851	
TIPULIDAE			
HOLORUSIA SP			
LARVAE	18		
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	163	109	109
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	977		634
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE		91	
DIAMESINAE			
DIAMESA SP			

2.4.5.237

APPENDIX C-12-2 (Continued)

SITE = 09 SITE DESC = JN TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	91	290	199
DIPLOCLADIUS SP			
LARVAE	91		
EUKIEFFERIELLA SP			
LARVAE	1122	796	1303
ORTHOCLADIUS SP			
LARVAE	1792	1792	1792
PARAPHAENOCLADIUS SP			
LARVAE	3475	3673	2335
PARAMETRIOCNEMUS SP			
LARVAE	2444	2769	199
THIENEMANNIELLA SP			
LARVAE		91	72
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE		91	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		54	36

2.4.5.238

APPENDIX C-12-2 (Continued)

SITE = 09 SITE DESC = DN TRACT C-4 COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
EMPIDIDAE			
HEMERODROMIA SP LARVAE	54	18	

APPENDIX C-12-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	217	360	127
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			72
TUBIFICIDAE			
IMMATURES WITH CAP. CHAETAE SP			72
IMMATURES W/O CAP. CHAETAE SP			145
NAIDIDAE			
NAIS SP	10806	36490	6987
ARTHROPODA			
ARACHNOIDEA			
ACARI		18	
CRUSTACEA			
OSTRACODA		1339	
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA		18	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	887		434

APPENDIX C-12-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE	887	3023	2824
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			
LARVAE		18	
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	127	91	54
TRICHOPTERA			
LIMNEPHILIDAE			
UNIDENTIFIED			
LARVAE	18		
DIPTERA			
UNIDENTIFIED			
PUPAE		1339	
TIPULIDAE			
HOLORUSIA SP			
LARVAE	18		
CULICIDAE			
UNIDENTIFIED			
PUPAE	54		18
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	163	833	253

APPENDIX C-12-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SUBBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	652	543	181
PSECTROTANYPUS SP			
LARVAE	181		91
DIAMESINAE			
DIAMESINAE SP. 1			
LARVAE	91	127	
DIAMESA SP			
LARVAE	1792	1213	1466
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	181		561
DIPLOCLADIUS SP			
LARVAE	91		
EUKIEFFERIELLA SP			
LARVAE	1412	941	362
ORTHOCLADIUS SP			
LARVAE	2063	6190	3602
PARACLADIUS SP			
LARVAE		127	

APPENDIX C-12-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	1321	398	1104
PARAMETRIOCNEMUS SP			
LARVAE	1701	272	2027
CHIRONOMINAE			
CHIRONOMINI SP			
LARVAE		127	
PHAENOPSECTRA/PHAENOPSECTRA			
LARVAE	91	3493	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		18	
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE			54
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE	127		54
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE		18	
LIMNOPHORA DISCRETA			
LARVAE			18

APPENDIX C-12-2 (Continued)

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
NEMATODA	400	178	178
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	755		178
TUBIFICIDAE			
IMMATURES WITH CAP. CHAETAE SP		44	
NAIDIDAE			
NAIS SP	8303	178	710
NAIS ELINGUIS			44
ARTHROPODA			
INSECTA			
UNIDENTIFIED	44	6616	
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	44		
CALLIBAETIS SP			
LARVAE	2442		1110
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			
LARVAE			44

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	44		
DIPTERA			
UNIDENTIFIED			
PUPAE		8091	
CULICIDAE			
UNIDENTIFIED			
PUPAE			44
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	1376	178	311
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	3685		1909
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	13764	8347	3552
PSECTROTANYPUS SP			
LARVAE		6438	1066
DIAMESINAE			
DIAMESA SP			
LARVAE			355
ORTHOCLADIINAE			
ORTHOCLADIUS SP			
LARVAE	5816	2575	710

APPENDIX C-12-2 (Continued)

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	710		
CHIRONOMINAE			
CHIRONOMUS SP			
LARVAE		622	355
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE	710	1288	1066
STICTOCHIRONOMUS SP			
LARVAE		622	
MICROPSECTRA SP			
LARVAE	53635	43690	28594
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		133	
EMPIDIDAE			
CLINOCERA SP			
LARVAE	133		

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	887	687	815
MOLLUSCA			
GASTROPODA			
BASOMMATOPHORA			
LYMNAEIDAE			
LYMNAEA SP	35		36
ANNELIDA			
HIRUDINEA			
RHYNCHOBDELLIDA			
GLOSSIPHONIIDAE			
HELOBDELLA STAGNALIS	18		
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		235	652
TUBIFICIDAE			
LIMNODRILUS HOFFMEISTERI			
TYPICAL			18
LIMNODRILUS UDEKEMIANUS		72	127
IMMATURES WITH CAP. CHAETAE SP	11240	778	6480
IMMATURES W/O CAP. CHAETAE SP	6027	525	3077
ARTHROPODA			
ARACHNOIDEA			
ACARI	1593	833	543

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
CRUSTACEA			
OSTRACODA		742	
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA			
--------- - ----	109	91	72
INSECTA			
COLLEMBOLA		18	
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
------ --			
LARVAE		1285	18
EPHEMERELLIDAE			
EPHEMERELLA SP			
---------- --			
LARVAE			18
TRICORYTHIDAE			
TRICORYTHODES SP			
------------ --			
LARVAE			18
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			

LARVAE	145	72	18
ENALLAGMA SP			
--------- --			
LARVAE			54
COLEOPTERA			
DYTISCIDAE			
DERONECTES SP			
---------- --			
LARVAE	54		72

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
COLEOPTERA			
DYTISCIDAE			
DEROVATELLUS SP			
LARVAE		54	
ELMIDAE			
UNIDENTIFIED			
LARVAE	18		
MICRODYLLOEPUS SP			
LARVAE		18	
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	235		72
LIMNEPHILIDAE			
GRAMMOTAULIUS SP			
LARVAE			54
HESPEROPHYLAX SP			
LARVAE			18
DIPTERA			
UNIDENTIFIED			
LARVAE	18		18
UNIDENTIFIED			
PUPAE		615	
PSYCHODIDAE			
TELMATOSCOPUS SP			
LARVAE		18	

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	3168	2353	2914
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	326		471
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE		181	163
DIAMESINAE			
DIAMESA SP			
LARVAE		181	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	760	1104	163
CRICOTOPUS CRICOTOPUS			
LARVAE		1104	
CRICOTOPUS ISOCLADIUS			
LARVAE		1104	
EUKIEFFERIELLA SP			
LARVAE	3801	1647	1104
ORTHOCLADIUS SP			
LARVAE	18987	4416	8417

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	13666	7711	6027
ORTHOCLADIINAE SP. 2			
LARVAE			163
CHIRONOMINAE			
PARATENDIPES SP			
LARVAE			796
PSEUDOCHIRONOMUS SP			
LARVAE	380		
MICROPSECTRA SP			
LARVAE		181	1104
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	58373	36110	51730
UNIDENTIFIED			
PUPAE		2534	1014
SIMULIUM SP			
LARVAE	2263		
SIMULIUM SP			
PUPAE			2425

APPENDIX C-12-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE	36	18	
TABANIDAE			
TABANUS SP			
LARVAE		36	
CHRYSOPS SP			
LARVAE	109	54	217
EMPIDIDAE			
CLINOCERA SP			
LARVAE	36	36	

APPENDIX C-12-2 (Continued)

SITE = 2C SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	109	217	109
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
UNIDENTIFIED SP. 1		36	
LIMNODRILUS SP. 1	36		18
LIMNODRILUS HOFFMEISTERI			
TYPICAL	18	18	
IMMATURES WITH CAP. CHAETAE SP		91	18
IMMATURES W/O CAP. CHAETAE SP	362	815	471
ARTHROPODA			
ARACHNOIDEA			
ACARI	344	145	163
CRUSTACEA			
OSTRACODA		18	
INSECTA			
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			
LARVAE	18		18

APPENDIX C-12-2 (Continued)

SITE = 20 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
COLEOPTERA			
DYTISCIDAE			
DEROVATELLUS SP			
LARVAE		18	
DIPTERA			
UNIDENTIFIED			
PUPAE		145	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	3095	1774	2027
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	398		145
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		344	91
CRICOTOPUS SP			
LARVAE		217	127
CRICOTOPUS CRICOTOPUS			
LARVAE	2787		1158
EUKIEFFERIELLA SP			
LARVAE	91	127	163
ORTHOCLADIUS SP			
LARVAE	4887	3294	2371

APPENDIX C-12-2 (Continued)

SITE = 20 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	507	253	253
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE		36	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	1430	1629	2226
UNIDENTIFIED			
PUPAE		91	
SIMULIUM SP			
PUPAE			109
SIMULIUM ARGUS			
LARVAE	91		

2.4.5.255

APPENDIX C-12-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	54	72	72
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
TUBIFICIDAE			
LIMNODRILUS UDEKEMIANUS			18
IMMATURES WITH CAP. CHAETAE SP	18		
ARTHROPODA			
ARACHNOIDEA			
ACARI	163		54
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE		18	
PLECOPTERA			
UNIDENTIFIED			
LARVAE		18	
DIPTERA			
UNIDENTIFIED			
PUPAE		561	
TIPULIDAE			
ORMOSIA SP			
LARVAE			54

2.4.5.256

APPENDIX C-12-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	543	416	217
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	434		253
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		308	163
CRICOTOPUS SP			
LARVAE	199		326
CRICOTOPUS CRICOTOPUS			
LARVAE	615	489	1358
CRICOTOPUS ISOCLADIUS			
LARVAE	72		54
EUKIEFFERIELLA SP			
LARVAE	272	217	434
ORTHOCLADIUS SP			
LARVAE	5575	3222	1629
PARAPHAENOCLADIUS SP			
LARVAE	72	91	54

APPENDIX C-12-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	995	1430	1267

APPENDIX C-12-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	127	54	145
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
TUBIFICIDAE			
UNIDENTIFIED SP. 1	18		36
LIMNODRILUS SP		344	507
LIMNODRILUS SP. 1	1032		
LIMNODRILUS HOFFMEISTERI			
TYPICAL	36	36	91
LIMNODRILUS UDEKEMIANUS	18		
TUBIFEX TUBIFEX	18		18
IMMATURES WITH CAP. CHAETAE SP	308	54	217

2.4.5.259

APPENDIX C-12-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	1502	724	1321
NAIDIDAE			
NAIS SP	36		
NAIS BEHNINGI			18
LUMBRICULIDA			
LUMBRICULIDAE			
UNIDENTIFIED	16	36	
ARTHROPODA			
ARACHNOIDEA			
ACARI	16		18
CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA		18	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE			18
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	18		
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE			18

APPENDIX C-12-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		109	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	272	18	91
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	308	127	253
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	72		
DIAMESINAE			
PSEUDODIAMESA SP			
LARVAE		36	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		91	
CRICOTOPUS SP			
LARVAE	217		
CRICOTOPUS CRICOTOPUS			
LARVAE		579	253
EUKIEFFERIELLA SP			
LARVAE	72	54	

APPENDIX C-12-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
ORTHOCLADIUS SP			
LARVAE	5068	1285	3946
PARAPHAENOCLADIUS SP			
LARVAE	1303	833	1973
CHIRONOMINAE			
STICTOCHIRONOMUS SP			
LARVAE	434		127
MICROPSECTRA SP			
LARVAE		36	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	127	109	290
SIMULIUM SP			
LARVAE			18
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE	18		18

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = tall cylindrical CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	117	98	117
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL	20		39
LIMNODRILUS HOFFMEISTERI			
TYPICAL	98		20
IMMATURES WITH CAP. CHAETAE SP		20	
IMMATURES W/O CAP. CHAETAE SP	59		98
NAIDIDAE			
NAIS SP	20	20	
NAIS BEHNINGI			39
ARTHROPODA			
ARACHNOIDEA			
ACARI	20		
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	20		137

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE		137	59
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	486	1619	741
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	20	195	117
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	39	176	39
COLEOPTERA			
ELMIDAE			
OPTIONSERVICE SP			
LARVAE			20
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			
UNIDENTIFIED			
LARVAE	20		
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE			215
HYDROPSYCHE SP			
LARVAE	20	312	78
[illegible]			

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPTILIDAE			
NEOTRICHIA SP			
LARVAE		20	
LEPIDOPTERA			
PYRALIDAE			
UNIDENTIFIED			
LARVAE	20	20	
DIPTERA			
UNIDENTIFIED			
PUPAE		683	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE	117		117
HEXATOMA SP			
LARVAE		39	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	39	59	20
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	215		176
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE		39	
DIAMESINAE			
BOOTOMESA SP			
LARVAE	20		

2.4.5.265

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	39	59	39
CRICOTOPUS CRICOTOPUS			
LARVAE	59		
CRICOTOPUS CRICOTOPUS BICINCTUS			
LARVAE	20		
CRICOTOPUS CRICOTOPUS TRIFASCIA			
LARVAE	20	59	
EUKIEFFERIELLA SP			
LARVAE	410	683	312
ORTHOCLADIUS SP			
LARVAE	995	1794	956
PARAKIEFFERIELLA SP			
LARVAE		39	
PARAPHAENOCLADIUS SP			
LARVAE	59		20
THIENEMANNIELLA SP			
LARVAE		59	

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
CHIRONOMUS SP			
LARVAE		3062	
HARNISCHIA SP			
LARVAE	20		
MICROTENDIPES SP			
LARVAE	39	156	39
POLYPEDILUM TRIPODURA GRP.			
LARVAE	78		176
STICTOCHIRONOMUS SP			
LARVAE			20
TANYTARSINI SP			
LARVAE	20		
MICROPSECTRA SP			
LARVAE		39	
RHEOTANYTARSUS SP			
LARVAE	98	137	78
RHAGIONIDAE			
ATHERIX VARIEGATA			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 23 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 24 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	98	117	156
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL		59	156
LIMNODRILUS HOFFMEISTERI			
TYPICAL	137	78	1502
TUBIFEX TUBIFEX			39
IMMATURES WITH CAP. CHAETAE SP			78
IMMATURES W/O CAP. CHAETAE SP	566	429	1580
NAIDIDAE			
NAIS SP		59	
NAIS BEHNINGI	59		137
ARTHROPODA			
ARACHNOIDEA			
ACARI		20	20

2.4.5.269

APPENDIX C-12-2 (Continued)

SITE = 24 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	39		254
BAETIS SP			
LARVAE	59	566	78
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE		39	78
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	644	3237	1989
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	39	176	293
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE			20
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	98	600	234
COLEOPTERA			
ELMIDAE			
OUBIRAPHIA SP			
LARVAE			20
MICROCYLLOEPUS SP			

APPENDIX C-12-2 (Continued)

SITE = 24 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	20		20
HYDROPSYCHE SP			
LARVAE		20	39
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE			98
DIPTERA			
UNIDENTIFIED			
PUPAE		78	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE	39		39
HEXATOMA SP			
LARVAE		59	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	117	20	39
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	39		137
DIAMESINAE			
DIAMESA SP			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 24 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
DIAMESINAE			
ODONTOMESA SP			
LARVAE			59
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		98	
CRICOTOPUS CRICOTOPUS			
LARVAE			59
CRICOTOPUS ISOCLADIUS			
LARVAE			59
EUKIEFFERIELLA SP			
LARVAE	93	351	156
ORTHOCLADIUS SP			
LARVAE	1034	566	1892
PARAPHAENOCLADIUS SP			
LARVAE	39	20	98
ORTHOCLADIINAE SP. 2			
LARVAE			59
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE	20		215

2.4.5.272

APPENDIX C-12-2 (Continued)

SITE = 24 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	644	819	2262
PARACLADOPELMA SP			
LARVAE		20	
POLYPEDILUM TRIPODURA GRP.			
LARVAE	20		
RHEOTANYTARSUS SP			
LARVAE	98	273	59
RHAGIONIDAE			
ATHERIX VARIEGATA			
LARVAE	39	117	59
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 25 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	20	59	59
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		20	39
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	39	20	
NAIDIDAE			
NAIS SP	78	78	20
NAIS BEHNINGI		20	20
ARTHROPODA			
ARACHNOIDEA			
ACARI		98	20
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	39		78
BAETIS SP			
LARVAE	59	585	59
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	20		59

APPENDIX C-12-2 (Continued)

SITE = 25 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
HEPTAGENIIDAE			
LARVAE		20	
LEPTOPHLEBIIDAE			
UNIDENTIFIED			
LARVAE		20	
PARALEPTOPHLEBIA SP			
LARVAE		20	
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1599	2282	1209
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	78	1073	
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
UNIDENTIFIED			
LARVAE		39	
ISOPERLA SP			
LARVAE		20	
COLEOPTERA			
DRYOPIDAE			
HELICHUS SP			
ADULTS	20		
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			

2.4.5.275

APPENDIX C-12-2 (Continued)

SITE = 25 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	20		
HYDROPSYCHE SP			
LARVAE	39	410	20
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE		137	
DIPTERA			
UNIDENTIFIED			
PUPAE		312	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE			78
HEXATOMA SP			
LARVAE		98	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	39	39	20
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	98		78
DIAMESINAE			
ODONTOMESA SP			
LARVAE	78		

2.4.5.276

APPENDIX C-12-2 (Continued)

SITE = 25 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	20		98
EUKIEFFERIELLA SP			
LARVAE	59	254	254
ORTHOCLADIUS SP			
LARVAE	371	683	332
PARAKIEFFERIELLA SP			
LARVAE			20
PARAPHAENOCLADIUS SP			
LARVAE		39	20
PARAMETRIOCNEMUS SP			
LARVAE		78	
ORTHOCLADIINAE SP. 2			
LARVAE	39		
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	59	117	20
PARACLADOPELMA SP			
LARVAE			39

2.4.5.277

APPENDIX C-12-2 (Continued)

SITE = 25 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
TANYTARSINI SP			
LARVAE	20	59	
CLADOTANYTARSUS SP			
LARVAE			20
RHEOTANYTARSUS SP			
LARVAE		117	20
RHAGIONIDAE			
ATHERIX VARIEGATA			
LARVAE	20	98	20

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	98		137
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		20	
TUBIFICIDAE			
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL			59
LIMNODRILUS HOFFMEISTERI			
TYPICAL	20		195
TUBIFEX TUBIFEX			20
IMMATURES WITH CAP. CHAETAE SP			20
IMMATURES W/O CAP. CHAETAE SP	20		117
NAIDIDAE			
NAIS SP	137	156	
NAIS BEHNINGI	20		

2.4.5.279

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
ARACHNOIDEA			
ACARI	78	39	39
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	59		78
BAETIS SP			
LARVAE	78	78	59
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	2457	1209	1872
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	1736	527	156
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	98	78	117
COLEOPTERA			
ELMIDAE			
DUBIRAPHIA SP			
LARVAE	20		
MICROCYLLOEPUS SP			
LARVAE		20	
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	527		59

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE	117	410	117
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	20		
LEPIDOPTERA			
PYRALIDAE			
UNIDENTIFIED			
LARVAE	39		
DIPTERA			
UNIDENTIFIED			
PUPAE		195	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE	20		
CULICIDAE			
UNIDENTIFIED			
LARVAE			20
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	273		156
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	39		
DIAMESINAE			
DIAMESINAE SP. 1			
LARVAE			20

2.4.5.231

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
DIAMESINAE			
DIAMESA SP			
LARVAE			39
ODONTOMESA SP			
LARVAE	20		
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	59	20	59
CRICOTOPUS CRICOTOPUS			
LARVAE	20		
EUKIEFFERIELLA SP			
LARVAE	20	117	156
ORTHOCLADIUS SP			
LARVAE	1092	663	897
PARAKIEFFERIELLA SP			
LARVAE	39		
PARAPHAENOCLADIUS SP			
LARVAE	78		39
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE	20		

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
HARNISCHIA SP			
LARVAE		20	
MICROTENDIPES SP			
LARVAE	527	273	273
POLYPEDILUM TRIPODURA GRP.			
LARVAE	20		
STICTOCHIRONOMUS SP			
LARVAE			20
RHEOTANYTARSUS SP			
LARVAE	293	429	20
ZAVRELIA SP			
LARVAE	20		

2.4.5.283

APPENDIX C-12-2 (Continued)

SITE = 27 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	20		
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL		20	39
LIMNODRILUS HOFFMEISTERI			
TYPICAL	332		78
IMMATURES WITH CAP. CHAETAE SP	20		
IMMATURES W/O CAP. CHAETAE SP	644	117	156
NAIDIDAE			
PRISTINA SP	20		
ARTHROPODA			
ARACHNOIDEA			
ACARI	39		
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE	20	39	
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	175	468	20

LARVAE 39 20

APPENDIX C-12-2 (Continued)

SITE = 27 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
DIAMESINAE			
ODONTOMESA SP			
LARVAE		20	20
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	20	20	
ORTHOCLADIUS SP			
LARVAE	78	488	
PARAKIEFFERIELLA SP			
LARVAE	20	39	
PARAPHAENOCLADIUS SP			
LARVAE		20	20
CHIRONOMINAE			
CHIRONOMINI SP			
LARVAE	20		
MICROTENDIPES SP			
LARVAE	234	234	
PARACLADOPELMA SP			
LARVAE		39	78
STICTOCHIRONOMUS SP			
LARVAE	39		39

APPENDIX C-12-2 (Continued)

SITE = 27 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
RHEOTANYTARSUS SP			
LARVAE		59	

APPENDIX C-12-2 (Continued)

SITE = 28 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
NEMATODA	20	256	20
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	197	532	
TUBIFICIDAE			
UNIDENTIFIED SP. 1	138	20	39
LIMNODRILUS SP. 1	138	20	59
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL	59		
LIMNODRILUS HOFFMEISTERI			
TYPICAL	217	276	256
LIMNODRILUS UDEKEMIANUS		20	
TUBIFEX TUBIFEX	39		
IMMATURES WITH CAP. CHAETAE SP	315	571	315

2.4.5.238

APPENDIX C-12-2 (Continued)

SITE = 28 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	591	749	847
NAIDIDAE			
NAIS SP	374	217	118
NAIS BEHNINGI	20		
NAIS ELINGUIS	59		
LUMBRICULIDA			
LUMBRICULIDAE			
UNIDENTIFIED			20
ARTHROPODA			
CRUSTACEA			
OSTRACODA		39	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	276		79
BAETIS SP			
LARVAE	99	236	315
HEPTAGENIIDAE			
UNIDENTIFIED			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	20		118
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1221	749	1773
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	158	296	276
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE	20		
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	59		138
COLEOPTERA			
ELMIDAE			
DUBIRAPHIA SP			
LARVAE		20	
MICROCYLLOEPUS SP			
LARVAE	20		
TRICHOPTERA			

2.4.5.290

APPENDIX C-12-2 (Continued)

SITE = 28 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		39	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE	20		
HEXATOMA SP			
LARVAE		39	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	20	59	39
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	276		118
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	20		177
DIAMESINAE			
MONODIAMESA SP			
LARVAE	118	20	138
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	39	79	59
CRICOTOPUS CRICOTOPUS BICINCTUS			
LARVAE	20		

2.4.5.291

APPENDIX C-12-2 (Continued)

SITE = 26 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	39		
ORTHOCLADIUS SP			
LARVAE	1044	965	1123
PARACLADIUS SP			
LARVAE		20	
PARAKIEFFERIELLA SP			
LARVAE	118	118	79
PARAPHAENOCLADIUS SP			
LARVAE	256	197	630
CHIRONOMINAE			
CHIRONOMUS SP			
LARVAE	20		
CRYPTOCHIRONOMUS SP			
LARVAE		39	59
MICROTENDIPES SP			
LARVAE	335		59
POLYPEDILUM TRIPODURA GRP.			
LARVAE	39	20	

APPENDIX C-12-2 (Continued)

SITE = 28 SITE DESC = WHITE RIVER COLLECTION METHOD = SHORT CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.7

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
STICTOCHIRONOMUS SP			
LARVAE			79
RHEOTANYTARSUS SP			
LARVAE	20	20	20
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		20	
TABANIDAE			
TABANUS SP			
LARVAE	20		

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	20	293	39
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		20	20
TUBIFICIDAE			
UNIDENTIFIED SP. 1		20	20
ILYODRILUS TEMPLETONI			20
LIMNODRILUS SP. 1	20		98
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL	20		
LIMNODRILUS HOFFMEISTERI			
TYPICAL	117	39	332
LIMNODRILUS UDEKEMIANUS	20		137
TUBIFEX TUBIFEX			39

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES WITH CAP. CHAETAE SP	96		137
IMMATURES W/O CAP. CHAETAE SP	605	59	1619
NAIDIDAE			
NAIS SP	858	312	195
NAIS BEHNINGI			20
NAIS ELINGUIS			20
ARTHROPODA			
ARACHNOIDEA			
ACARI	20	39	20
CRUSTACEA			
OSTRACODA		39	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	59		20
BAETIS SP			
LARVAE	20	137	

2.4.5.295

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	39	20	39
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	527	897	468
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	39	195	39
COLEOPTERA			
DYTISCIDAE			
DERONECTELLUS SP			
LARVAE		20	
ELMIDAE			
OUBIRAPHIA SP			
LARVAE	20		
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	20		78
HYDROPSYCHE SP			
LARVAE	39	410	20
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	20		
DIPTERA			

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	39	78	59
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	59		
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	20		39
DIAMESINAE			
MONODIAMESA SP			
LARVAE			20
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	59	234	
CRICOTOPUS SP			
LARVAE			20
CRICOTOPUS CRICOTOPUS			
LARVAE	59	117	20
CRICOTOPUS ISOCLADIUS			
LARVAE		20	
EUKIEFFERIELLA SP			
LARVAE		59	20

2.4.5.297

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
ORTHOCLADIUS SP			
LARVAE	449	1521	312
PARAPHAENOCLADIUS SP			
LARVAE	98	20	59
ORTHOCLADIINAE SP. 3			
LARVAE	39		
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	20	20	
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE			20
POLYPEDILUM TRIPODURA GRP.			
LARVAE	59	20	
STICTOCHIRONOMUS SP			
LARVAE	20	39	410
RHEOTANYTARSUS SP			
LARVAE		137	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	20		20

2.4.5.293

APPENDIX C-12-2 (Continued)

SITE = 29 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
RHAGIONIDAE			
ATHERIX VARIEGATA			
LARVAE	20		
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE		39	

APPENDIX C-12-2 (Continued)

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA			
ANNELIDA	20	39	
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	98	20	78
NAIDIDAE			
NAIS SP	20		39
NAIS BEHNINGI	78		39
ARTHROPODA			
ARACHNOIDEA	39		78
ACARI			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	20		
BAETIS SP			
LARVAE	39	117	39
EPHEMERELLIDAE			
EPHEMERELLA SP	1424	917	936
LARVAE			
TRICORYTHIDAE			
TRICORYTHODES SP	527	234	390
LARVAE			

APPENDIX C-12-2 (Continued)

SITE = 3C SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE	20		
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	78		20
COLEOPTERA			
ELMIDAE			
DUBIRAPHIA SP			
LARVAE	20		
MICROCYLLOEPUS SP			
LARVAE	20		
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	449		176
HYDROPSYCHE SP			
LARVAE	93	20	137
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	449	39	59
LEPIDOPTERA			
PYRALIDAE			
UNIDENTIFIED			
LARVAE	39	20	20

APPENDIX C-12-2 (Continued)

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
TIPULIDAE			
LIMNOPHILA SP			
LARVAE			78
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE		20	20
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	78		137
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE	20		
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	20	59	
CRICOTOPUS CRICOTOPUS			
LARVAE	20		98
EUKIEFFERIELLA SP			
LARVAE	78	117	98
ORTHOCLADIUS SP			
LARVAE	527	449	585
PARAKIEFFERIELLA SP			
LARVAE	20	20	

APPENDIX C-12-2 (Continued)

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	20		39
PARAMETRIOCNEMUS SP			
LARVAE		20	
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	917	507	2867
PARACLADOPELMA SP			
LARVAE	39		
POLYPEDILUM TRIPODURA GRP.			
LARVAE		20	
RHEOTANYTARSUS SP			
LARVAE	624	254	624
EMPIDIDAE			
CLINOCERA SP			
LARVAE	39		20

APPENDIX C-12-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	20	59	
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	39	20	
NAIDIDAE			
NAIS SP	20	117	
LUMBRICULIDA			
LUMBRICULIDAE			
UNIDENTIFIED			20
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	117		98
BAETIS SP			
LARVAE	39	312	78
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	39		39
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1151	1463	449
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE		78	20

APPENDIX C-12-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	20	98	
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			
UNIDENTIFIED			
LARVAE	39		20
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	312		59
HYDROPSYCHE SP			
LARVAE	59	683	20
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	39	39	
LEPIDOPTERA			
PYRALIDAE			
UNIDENTIFIED			
LARVAE	20	39	
DIPTERA			
UNIDENTIFIED			
PUPAE		117	
TIPULIDAE			
LIMNOPHILA SP			
LARVAE	20		39
HEXATOMA SP			

2.4.5.305

APPENDIX C-12-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	20	78	
CHIRONOMIDAE			
UNIDENTIFIED			
LARVAE	137		
UNIDENTIFIED			
PUPAE			39
DIAMESINAE			
MONODIAMESA SP			
LARVAE	20		
ODONTOMESA SP			
LARVAE		20	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		39	
EUKIEFFERIELLA SP			
LARVAE	273	410	195
ORTHOCLADIUS SP			
LARVAE	429	605	351
PARAPHAENOCLADIUS SP			
LARVAE	20		

APPENDIX C-12-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
ORTHOCLADIINAE SP. 1			
LARVAE	20		
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	20	117	20
PARACLADOPELMA SP			
LARVAE		20	
STICTOCHIRONOMUS SP			
LARVAE			20
RHEOTANYTARSUS SP			
LARVAE			20
ZAVRELIA SP			
LARVAE			20
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		20	
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE		20	

APPENDIX C-12-2 (Continued)

SITE = 32 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA		20	
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	20	39	
TUBIFICIDAE			
LIMNODRILUS SP. 1			39
LIMNODRILUS HOFFMEISTERI			
TYPICAL			20
IMMATURES WITH CAP. CHAETAE SP			39
IMMATURES W/O CAP. CHAETAE SP	98	117	59
NAIDIDAE			
NAIS SP	39	449	39
NAIS ELINGUIS			137
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE			20

2.4.5.303

APPENDIX C-12-2 (Continued)

SITE = 32 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE		117	59
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1151	956	605
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	78		39
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE	20		
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE		20	
COLEOPTERA			
ELMIDAE			
MICROCYLLOEPUS SP			
LARVAE		20	20
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	98		20
HYDROPSYCHE SP			
LARVAE		20	

2.4.5.309

LARVAE	20		

APPENDIX C-12-2 (Continued)

SITE = 32 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		156	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE			59
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	78		78
TANYPODINAE			
CONCHAPELOPIA SP			
LARVAE			78
DIAMESINAE			
MONODIAMESA SP			
LARVAE			39
PROTHASTIA SP			
LARVAE			20
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	20	117	
CRICOTOPUS SP			
LARVAE	20		
CRICOTOPUS CRICOTOPUS			
LARVAE	59	215	

APPENDIX C-12-2 (Continued)

SITE = 32 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	117	59	
ORTHOCLADIUS SP			
LARVAE	1229	702	780
PARAKIEFFERIELLA SP			
LARVAE	39		
PARAPHAENOCLADIUS SP			
LARVAE	195	195	176
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	39	234	234
POLYPEDILUM TRIPODURA GRP.			
LARVAE	20		20
STICTOCHIRONOMUS SP			
LARVAE	20		
RHEOTANYTARSUS SP			
LARVAE	59	59	
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE		20	

2.4.5.311

APPENDIX C-12-2 (Continued)

SITE = 33 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	59	176	156
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS HOFFMEISTERI			
TYPICAL		117	20
LIMNODRILUS UDEKEMIANUS		20	
IMMATURES WITH CAP. CHAETAE SP		20	
IMMATURES W/O CAP. CHAETAE SP	98	117	156
NAIDIDAE			
NAIS ELINGUIS			20
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	59		
BAETIS SP			
LARVAE	273	59	78
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	98	20	117

APPENDIX C-12-2 (Continued)

SITE = 33 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1872	702	761
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	39		39
COLEOPTERA			
ELMIDAE			
MICROCYLLOEPUS SP			
LARVAE	20		
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			
UNIDENTIFIED			
LARVAE	39		39
HYDROPSYCHIDAE			
UNIDENTIFIED			
LARVAE	20		
HYDROPSYCHE SP			
LARVAE		39	20
LEPTOCERIDAE			
OECETIS SP			
LARVAE	20		
DIPTERA			
UNIDENTIFIED			
PUPAE		176	

APPENDIX C-12-2 (Continued)

SITE = 33 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
TIPULIDAE			
HEXATOMA SP			
LARVAE		78	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	59		20
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	59		
ORTHOCLADIINAE			
CRICOTOPUS CRICOTOPUS			
LARVAE			20
EUKIEFFERIELLA SP			
LARVAE	59		
ORTHOCLADIUS SP			
LARVAE	390	156	371
PARAPHAENOCLADIUS SP			
LARVAE	39	20	
PARAMETRIOCNEMUS SP			
LARVAE		20	
ORTHOCLADIINAE SP. 2			
LARVAE			20

APPENDIX C-12-2 (Continued)

SITE = 53 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE		39	
MICROTENDIPES SP			
LARVAE	39	234	78
POLYPEDILUM TRIPODURA GRP.			
LARVAE	78	98	449
RHEOTANYTARSUS SP			
LARVAE	215	39	20

APPENDIX C-12-2 (Continued)

SITE = 34 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA			20
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	78		
NAIDIDAE			
PRISTINA SP			20
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	59		98
BAETIS SP			
LARVAE	176	117	273
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	20		215
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	1053	176	1034
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE	39		39
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	20		20

APPENDIX C-12-2 (Continued)

SITE = 34 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			
UNIDENTIFIED			
LARVAE	20		
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE	20		
DIPTERA			
TIPULIDAE			
LIMNOPHILA SP			
LARVAE			20
HEXATOMA SP			
LARVAE		39	
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	20		20
DIAMESINAE			
ODONTOMESA SP			
LARVAE	20		
POTTHASTIA SP			
LARVAE			20
ORTHOCLADIINAE			
ORTHOCLADIUS SP			
LARVAE	390		312
PARAKIEFFERIELLA SP			
LARVAE			39

2.4.5.317

APPENDIX C-12-2 (Continued)

SITE = 34 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	20		20
PARAMETRICNEMUS SP			
LARVAE	20		
ORTHOCLADIINAE SP. 1			
LARVAE	20		
ORTHOCLADIINAE SP. 2			
LARVAE	20		
CHIRONOMINAE			
CHIRONOMUS SP			
LARVAE			20
MICROTENDIPES SP			
LARVAE	59		
PARACLADOPELMA SP			
LARVAE			39
POLYPEDILUM TRIPODURA GRP.			
LARVAE	20		
RHEOTANYTARSUS SP			
LARVAE	20		

APPENDIX C-12-2 (Continued)

SITE = 35 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	39	117	
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	20	20	
TUBIFICIDAE			
LIMNODRILUS HOFFMEISTERI			
TYPICAL		20	
IMMATURES W/O CAP. CHAETAE SP	20	39	
NAIDIDAE			
NAIS SP		20	
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
LARVAE	117		
BAETIS SP			
LARVAE	59	98	
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	59	59	
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE	351	1502	

APPENDIX C-12-2 (Continued)

SITE = 35 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
TRICORYTHIDAE			
TRICORYTHODES SP			
LARVAE		39	
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE	39	59	
COLEOPTERA			
ELMIDAE			
DUBIRAPHIA SP			
LARVAE		20	
TRICHOPTERA			
RHYACOPHILIDAE			
GLOSSOSOMATINAE			
UNIDENTIFIED			
LARVAE	78		
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE	39	59	
HYDROPTILIDAE			
NEOTRICHIA SP			
LARVAE		78	
BRACHYCENTRIDAE			
BRACHYCENTRUS SP			
PUPAE	20		
DIPTERA			
UNIDENTIFIED			
PUPAE		156	
TIPULIDAE			
[illegible] SP			
[illegible]			

APPENDIX C-12-2 (Continued)

SITE = 35 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	20		
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	20	76	
EUKIEFFERIELLA SP			
LARVAE		117	
ORTHOCLADIUS SP			
LARVAE	78	1268	
ORTHOCLADIINAE SP. 1			
LARVAE	39		
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE	20		
PARACLADOPELMA SP			
LARVAE	20		
RHEOTANYTARSUS SP			
LARVAE		59	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE		20	

2.4.5.321

APPENDIX C-12-2 (Continued)

SITE = 35 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
SIMULIIDAE			
UNIDENTIFIED			
PUPAE		59	

APPENDIX C-13-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-13-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Nematoda

Mollusca
- Gastropoda
  - Basommatophora
    - Physidae
      - *Physa* Draparnaud
    - Lymnaeidae
      - *Lymnaea* Lamarck
    - Planorbidae
      - *Gyraulus parvus* Charpentier

Annelida
- Hirudinea
  - Rhynchobdellida
    - Glossiphoniidae
      - *Helobdella stagnalis* (Linnaeus)
- Oligochaeta
  - Enchytraeidae
  - Haplotaxidae
    - *Haplotaxis*
  - Lumbriculidae
  - Naididae
    - *Chaetogaster diastrophus*
    - *Nais* sp.
  - Tubificidae
    - *Ilyodrilus templetoni*
    - *Limnodrilus claparedeianus*
    - *Limnodrilus hoffmeisteri*
    - *Limnodrilus udekemianus*
    - *Limnodrilus* sp.
  - Rhyacodrilinae
  - Tufificidae sp.
  - Immature Tubificidae with capilliform chaetae
  - Immature Tubificidae without capilliform chaetae

Arthropoda
- Arachnoidea
  - Acari
- Crustacea
  - Amphipoda
    - Talitridae
      - *Hyallela azteca* (Saussure)
- Insecta
  - Ephemeroptera
    - Heptageniidae
      - *Epeorus* Eaton
      - *Rhithrogena* Eaton

- Baetidae
  - Baetis Leach
  - Callibaetis Eaton
- Ephemerellidae
  - Ephemerella Walsh

Collembola

Odonata

- Zygoptera
  - Coenagrionidae
    - Argia Rambur
    - Argia sedula (Hagen)
    - Amphiagron abbreviatum (Selys)
- Anisoptera
  - Gomphidae

Plecoptera

- Systellognatha
  - Perlodidae
    - Isoperla Banks

Coleoptera

- Dytiscidae
  - Agabus Leach
  - Deronectes Sharp
  - Hydaticus Leach
  - Hydroporus Clairville
  - Rhantus Dejean
- Elmidae
  - Dubiraphia Sanderson
- Hydrophilidae

Trichoptera

- Glossosomatidae
- Hydropsychidae
  - Hydropsyche Pictet
- Hydroptilidae
  - Hydroptila Dalman

Lepidoptera

- Pyralidae

Hemiptera

- Corixidae

Diptera

- Tipulidae
  - Holorusia Loew
  - Limnophila Macquart
  - Ormosia Rondani
  - Pedicia Latirelle
- Tipulidae (unidentified)
- Psychodidae
- Ceratopogonidae
  - Culicoides Latirelle
- Chironomidae
  - Tanypodinae
    - Larsia

Labrundina
Pentaneurini
Thienemannimyia grp.
Diamesinae
Diamesa
Odontomesa
Pseudodiamesa c.f. pertinax
Diamesinae sp.
Orthocladiinae
Chaetocladius
Corynoneura
Cricotopus
Cricotopus (Cricotopus)
Cricotopus (Cricotopus) bicinctus
Cricotopus (Isocladius)
Eukiefferiella
Gymnometriocnemus terrestris grp.
Krenosmittia
Metriocnemus
Orthocladius
Parametriocnemus
Paraphaenocladius
Pseudosmittia
Thienemanniella
Orthocladiinae sp.
Chironominae
Chironomini
Cryptochironomus
Microtendipes
Paratendipes
Phaenopsectra (phaenopsectra)
Polypedilum tripodura grp.
Tanytarsini
Micropsectra
Rheotanytarsus
Dixidae
Dixa
Dolichopodidae
Hydrophorus agalama
Simuliidae
Stratiomyidae
Euparyphus Gerstaecker
Stratiomys Geoffroy
Rhagionidae
Atherix variegata Walker
Empididae
Clinocera Meigen
Hemerodromia Meigen
Anthomyiidae
Limnophora aequifrons Stein
Limnophora discreta Stein
Limnophora sp.

APPENDIX C-13-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-13-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

SITE = 01 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	145	72	416
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	18		54
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS	326		1557
BAETIS SP			
LARVAE	199	2172	1032
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE			18
DIPTERA			
UNIDENTIFIED			
PUPAE		36	
TIPULIDAE			
UNIDENTIFIED			
LARVAE		18	
PEDICIA SP			
LARVAE			18
LIMNOPHILA SP			
LARVAE			36

APPENDIX C-13-2 (Continued)

SITE # 01 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE		54	54
CHIRONOMIDAE			
UNIDENTIFIED			
LARVAE	18		
UNIDENTIFIED			
PUPAE	272		145
DIAMESINAE			
UNIDENTIFIED			
LARVAE			91
DIAMESA SP			
LARVAE	796	163	380
PSEUDODIAMESA PERTINAX			
LARVAE		326	235
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE		18	163
EUKIEFFERIELLA SP			
LARVAE	109	18	91
ORTHOCLADIUS SP			
LARVAE	235	199	923

APPENDIX C-13-2 (Continued)

SITE = 01 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE			54
SIMULIIDAE			
UNIDENTIFIED			
PUPAE			18
EMPIDIDAE			
UNIDENTIFIED			
LARVAE		18	
ANTHOMYIIDAE			
LIMNOPHORA SP			
LARVAE		36	
LIMNOPHORA DISCRETA			
LARVAE			18
MUSCIDAE			
UNIDENTIFIED			
LARVAE			18

APPENDIX C-13-2 (Continued)

SITE = 02 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	36	54	18
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			36
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS	18		18
BAETIS SP.			
LARVAE	36		54
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE	36	18	
DIPTERA			
TIPULIDAE			
PEDICIA SP			
LARVAE	18		
CERATOPOGONIDAE			
CULICOIDES SP			
PUPAE	18		18
CHIRONOMIDAE			
DIAMESINAE			
UNIDENTIFIED			
LARVAE	18		
DIAMESA SP			
LARVAE	72		127

2.4.5.331

APPENDIX C-13-2 (Continued)

SITE = 02 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	18	18	
SYNORTHOCLADIUS SP			
LARVAE	18		
ORTHOCLADIUS SP			
LARVAE	72	18	54

APPENDIX C-13-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	72	326	127
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	163		
NAIDIDAE			
CHAETOGASTER DIASTROPHUS			36
NAIS SP	362	634	145
ARTHROPODA			
CRUSTACEA			
OSTRACODA		507	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS			18
BAETIS SP			
LARVAE	54	163	163
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE	18		72
HYDATICUS SP			
LARVAE		18	

APPENDIX C-13-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	18		
DIPTERA			
UNIDENTIFIED			
PUPAE			18
TIPULIDAE			
HOLORUSIA SP			
LARVAE	253	706	543
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	36	127	181
CULICOIDES SP			
PUPAE			18
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	18		18
TANYPODINAE			
PENTANEURINI SP			
LARVAE		127	
LARSIA SP			
LARVAE			54
DIAMESINAE			
DIAMESA SP			
LARVAE			36

APPENDIX C-13-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
DIAMESINAE			
PSEUDODIAMESA PERTINAX			
LARVAE		36	18
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	145	290	145
CHAETOCLADIUS SP			
LARVAE			18
CORYNONEURA SP			
LARVAE		163	
EUKIEFFERIELLA SP			
LARVAE	326	634	272
METRIOCNEMUS SP			
LARVAE			18
ORTHOCLADIUS SP			
LARVAE	453	1231	706
PARAPHAENOCLADIUS SP			
LARVAE	91	36	127
THIENEMANNIELLA SP			
LARVAE			18

APPENDIX C-13-2 (Continued)

SITE = 03 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE		127	
MICROPSECTRA SP			
LARVAE	91	1303	434
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE		18	
STRATIOMYS SP			
LARVAE	18		
ANTHOMYIIDAE			
LIMNOPHORA AEQUIFRONS			
LARVAE		18	
MUSCIDAE			
UNIDENTIFIED			
LARVAE			18

2.4.5.336

APPENDIX C-13-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	16	36	
ARTHROPODA			18
ARACHNOIDEA			
ACARI			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP		18	
LARVAE			
DIPTERA			
CHIRONOMIDAE			
UNIDENTIFIED			54
PUPAE			
DIAMESINAE			
PSEUDODIAMESA PERTINAX		18	
LARVAE			
ORTHOCLADIINAE			
UNIDENTIFIED	18		
LARVAE			
EUKIEFFERIELLA SP	36		
LARVAE			
ORTHOCLADIUS SP	36		18
LARVAE			
PARAPHAENOCLADIUS SP		18	
LARVAE			

APPENDIX C-13-2 (Continued)

SITE = 04 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAMETRIOCNEMUS SP			
LARVAE		18	18
THIENEMANNIELLA SP			
LARVAE		18	
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE			18
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	18		

2.4.5.338

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	2263	4416	2045
MOLLUSCA			
GASTROPODA			
UNIDENTIFIED	18		
BASOMMATOPHORA			
PHYSIDAE			
PHYSA SP			18
PLANORBIDAE			
UNIDENTIFIED	72		72
GYRAULUS SP		36	
ANNELIDA			
HIRUDINEA			
RHYNCHOBDELLIDA			
GLOSSIPHONIIDAE			
HELOBDELLA STAGNALIS			18
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		18	
TUBIFICIDAE			
UNIDENTIFIED SP. 1	579	453	3077
ILYODRILUS TEMPLETONI	398	308	1611

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS SP. 1	36		
LIMNODRILUS HOFFMEISTERI			
TYPICAL	72	163	
LIMNODRILUS UDEKEMIANUS		18	
RHYACODRILINAE SP	54	54	561
RHYACODRILINAE SP. 1	13	91	
IMMATURES WITH CAP. CHAETAE SP	4018	3928	4670
IMMATURES W/O CAP. CHAETAE SP	1973	2118	2172
ARTHROPODA			
ARACHNOIDEA			
ACARI		163	109
CRUSTACEA			
OSTRACODA		109	

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA			
--------- - ----		434	489
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
------ --			
LARVAE		72	199
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			

LARVAE	54		109
ARGIA SP			
----- --			
LARVAE	36	72	72
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			

LARVAE	18		
AGABUS SP			
------ --			
LARVAE	18		
DERONECTES SP			
---------- --			
LARVAE			127
DERONECTES SP			
---------- --			
ADULTS	91		
HYDATICUS SP			
--------- --			
LARVAE		18	

2.4.5.341

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
COLEOPTERA			
DYTISCIDAE			
RHANTUS SP			
LARVAE			18
TRICHOPTERA			
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE		18	18
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE		1140	72
DIPTERA			
UNIDENTIFIED			
PUPAE		18	
TIPULIDAE			
HELOBDSIA SP			
LARVAE	54	54	72
DIXIDAE			
DIXA SP			
LARVAE		18	18
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	1484	3928	1032
UNIDENTIFIED			
PUPAE	18		
CULICOIDES SP			
PUPAE			18

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	18		
TANYPODINAE			
PENTANEURINI SP			
LARVAE		18	
LABRUNDINIA SP			
LARVAE	18		
THIENEMANNIMYIA GROUP SP			
LARVAE	18		18
DIAMESINAE			
DIAMESINAE SP. 1			
LARVAE	36	18	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	54	199	
CHAETOCLADIUS SP			
LARVAE			18
CORYNONEURA SP			
LARVAE	18		
CRICOTOPUS CRICOTOPUS BICINCTUS			
LARVAE		36	

APPENDIX C-13-2 (Continued)

SITE = 05 SITE DESC = HEADWATERS COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP			
LARVAE	253	471	127
METRICNEMUS SP			
LARVAE		18	
ORTHOCLADIUS SP			
LARVAE	471	742	181
PARAMETRICNEMUS SP			
LARVAE		36	
THIENEMANNIELLA SP			
LARVAE	18		18
CHIRONOMINAE			
CRYPTOCHIRONOMUS SP			
LARVAE		18	
MICROPSECTRA SP			
LARVAE	253	543	181
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	724	869	235

APPENDIX C-13-2 (Continued)

SITE = 06 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
HEPTAGENIIDAE			
EPEORUS SP			
LARVAE	18		
DIPTERA			
UNIDENTIFIED			
LARVAE		18	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	18		36
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE			36
DIAMESINAE			
DIAMESA SP			
LARVAE	18		
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE			36
SYNORTHOCLADIUS SP			
LARVAE			18
ORTHOCLADIUS SP			
LARVAE	36	18	18

APPENDIX C-13-2 (Continued)

SITE = 06 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE	16		

APPENDIX C-13-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	18	18	
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	326	235	199
ARTHROPODA			
ARACHNOIDEA			
ACARI			18
CRUSTACEA			
OSTRACODA		109	
INSECTA			
COLLEMBOLA		18	
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS			54
BAETIS SP			
LARVAE	272	453	398
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
ARGIA SP			
LARVAE		18	
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE	18	109	18

APPENDIX C-13-2 (Continued)

SITE = 07 SITE DESC = JN TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
COLEOPTERA			
DYTISCIDAE			
HYDROPORUS SP			
LARVAE		18	
HYDATICUS SP			
LARVAE		36	
HYDROPHILIDAE			
UNIDENTIFIED			
LARVAE			54
DIPTERA			
UNIDENTIFIED			
PUPAE		217	
TIPULIDAE			
DRYOSIA SP			
LARVAE			18
HOLORUSIA SP			
LARVAE	18	18	18
[illegible]			
UNIDENTIFIED			
LARVAE	199	163	36
CULICOIDES SP			
PUPAE	54		54
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	109	91	127

APPENDIX C-13-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
TANYPODINAE			
THIENEMANNIMYIA GROUP SP			
LARVAE			18
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	91	18	18
CORYNONEURA SP			
LARVAE			18
EUKIEFFERIELLA SP			
LARVAE		36	72
ORTHOCLADIUS SP			
LARVAE		72	145
PARAPHAENOCLADIUS SP			
LARVAE	72	127	16
PARAMETRIOCNEMUS SP			
LARVAE	18	127	
PSEUDOSMITTIA SP			
LARVAE	18		
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE	18		

APPENDIX C-13-2 (Continued)

SITE = 07 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE	18	54	
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE	36		54
HEMERODROMIA SP			
PUPAE	18		36
DOLICHOPODIDAE			
HYDROPHORUS SP			
LARVAE		18	
MUSCIDAE			
UNIDENTIFIED			
LARVAE			18

APPENDIX C-13-2 (Continued)

SITE = 08 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE		18	
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	18		
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	18		
ORTHOCLADIINAE			
KRENOSMITTIA SP			
LARVAE			18
ORTHOCLADIUS SP			
LARVAE			18
PARAMETRIOCNEMUS SP			
LARVAE		18	

APPENDIX C-13-2 (Continued)

SITE = 09 SITE DESC = UN TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	36	398	181
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
HAPLOTAXIDAE			
HAPLOTAXIS SP			109
ENCHYTRAEIDAE	2263	1430	416
TUBIFICIDAE			
IMMATURES WITH CAP. CHAETAE SP	18		
NAIDIDAE			
NAIS SP	1321	1376	1086
LUMBRICULIDA			
LUMBRICULIDAE			
UNIDENTIFIED		109	54
ARTHROPODA			
CRUSTACEA			
OSTRACODA		54	
INSECTA			
COLLEMBOLA	18		
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS	36		18

APPENDIX C-13-2 (Continued)

SITE = 09 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
BAETIS SP			
LARVAE	615	380	181
PLECOPTERA			
UNIDENTIFIED			
LARVAE			18
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE	18	18	
DIPTERA			
UNIDENTIFIED			
PUPAE		489	
TIPULIDAE			
DRYOSIA SP			
LARVAE	18		
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	670	959	199
CULICOIDES SP			
PUPAE	145		145
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	760		706
DIAMESINAE			

APPENDIX C-13-2 (Continued)

SITE = 09 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	91	109	290
CHAETOCLADIUS SP			
LARVAE	54	91	380
CRICOTOPUS CRICOTOPUS			
LARVAE			54
EUKIEFFERIELLA SP			
LARVAE	398	398	290
KRENOSMITTIA SP			
LARVAE	54		145
METRIOCNEMUS SP			
LARVAE	36	36	
ORTHOCLADIUS SP			
LARVAE	1303	796	3330
PARAPHAENOCLADIUS SP			
LARVAE		18	
PARAMETRIOCNEMUS SP			
LARVAE	290	145	344

APPENDIX C-13-2 (Continued)

SITE = 09 SITE DESC = ON TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
THIENEMANNIELLA SP			
LARVAE	290	18	199
CHIRONOMINAE			
PHAENOPSECTRA PHAENOPSECTRA			
LARVAE	36		
MICROPSECTRA SP			
LARVAE	344	199	235
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE			18
EMPIDIDAE			
CLINOCERA SP			
LARVAE	18		
HEMERODROMIA SP			
LARVAE	199	91	235
HEMERODROMIA SP			
PUPAE	91		163
MUSCIDAE			
UNIDENTIFIED			
LARVAE			18

APPENDIX C-13-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	18		91
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
TUBIFICIDAE			
LIMNODRILUS HOFFMEISTERI			
TYPICAL	18		
IMMATURES W/O CAP. CHAETAE SP	18		91
NAIDIDAE			
NAIS SP			18
ARTHROPODA			
INSECTA			
DIPTERA			
UNIDENTIFIED			
PUPAE		18	
TIPULIDAE			
ORMOSIA SP			
LARVAE			18
HOLORUSIA SP			
LARVAE	36		145
PSYCHODIDAE			
UNIDENTIFIED			
LARVAE		18	

APPENDIX C-13-2 (Continued)

SITE = 13 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE			36
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE	18		
PARAMETRIOCNEMUS SP			
LARVAE			18
EMPIDIDAE			
HEMERODROMIA SP			
LARVAE			18

APPENDIX C-13-2 (Continued)

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
NEMATODA	89	89	178
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	1732	799	1820
TUBIFICIDAE			
UNIDENTIFIED SP. 1			
---------- -- -		44	
NAIDIDAE			
NAIS SP			
---- --		44	
ARTHROPODA			
CRUSTACEA			
OSTRACODA		44	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
CALLIBAETIS SP			
---------- --			
LARVAE	1332	888	844
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			

LARVAE			44
AMPHIAGRION SP			
---------- --			
ADULTS	444		44
COLEOPTERA			
DYTISCIDAE			
RHANTUS SP			
------- --			
LARVAE			44

2.4.5.358

APPENDIX C-13-2 (Continued)

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	1066	533	710
CULICOIDES SP			
LARVAE			44
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE		44	
TANYPODINAE			
PENTANEURINI SP			
LARVAE		133	
PSECTROTANYPUS SP			
LARVAE	44	133	
THIENEMANNIMYIA GROUP SP			
LARVAE	222		44
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	44		44
METRIOCNEMUS SP			
LARVAE			44
ORTHOCLADIUS SP			
LARVAE	133		

APPENDIX C-13-2 (Continued)

SITE = 14 SITE DESC = NEAR TRACT C-A COLLECTION METHOD = EKMAN DREDGE CONVERSION FACTOR APPLIED= 44.4

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
UNIDENTIFIED			
LARVAE	44		
PARATENDIPES SP			
LARVAE	44		
TANYTARSINI SP			
LARVAE	44		
MICROPSECTRA SP			
LARVAE	1820	666	1288
RHEOTANYTARSUS SP			
LARVAE	44		

APPENDIX C-13-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	36	54	54
MOLLUSCA			
GASTROPODA			
BASOMMATOPHORA			
LYMNAEIDAE			
LYMNAEA SP		235	471
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE			18
TUBIFICIDAE			
UNIDENTIFIED SP. 1	72	145	652
LIMNODRILUS HOFFMEISTERI			
TYPICAL			18
IMMATURES WITH CAP. CHAETAE SP	1086	977	2244
IMMATURES W/O CAP. CHAETAE SP		91	398
ARTHROPODA			
ARACHNOIDEA			
ACARI	1140	1520	72
CRUSTACEA			
OSTRACODA		235	

2.4.5.361

APPENDIX C-13-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
CRUSTACEA			
AMPHIPODA			
TALITRIDAE			
HYALELLA AZTECA			
-------- - ----		36	
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
CALLIBAETIS SP			
---------- --			
LARVAE			18
ODONATA			
ZYGOPTERA			
COENAGRIONIDAE			
UNIDENTIFIED			

LARVAE	634	18	18
ARGIA SP			
----- --			
LARVAE	127	706	
COLEOPTERA			
UNIDENTIFIED			

ADULTS		72	
DYTISCIDAE			
UNIDENTIFIED			

LARVAE	36		36
DERONECTES SP			
---------- --			
LARVAE	36		91
HYDROPORUS SP			
---------- --			
LARVAE		18	
ELMIDAE			
DUBIRAPHIA SP			
---------- --			
ADULTS	18		

APPENDIX C-13-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	91	163	91
DIPTERA			
UNIDENTIFIED			
PUPAE		416	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	5195	3168	959
CULICOIDES SP			
LARVAE	18		
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	91		91
TANYPODINAE			
THIENEMANNIMYIA GROUP SP			
LARVAE		91	
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	54		
EUKIEFFERIELLA SP			
LARVAE	434	815	
ORTHOCLADIUS SP			
LARVAE	3385	3765	2263

2.4.5.363

APPENDIX C-13-2 (Continued)

SITE = 19 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE		91	
CHIRONOMINAE			
PARATENDIPES SP			
LARVAE	815	3041	742
MICROPSECTRA SP			
LARVAE	869	905	2425
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	10154	21702	2751
UNIDENTIFIED			
PUPAE		2009	
SIMULIUM SP			
PUPAE	815		217
STRATIOMYIDAE			
EUPARYPHUS SP			
LARVAE		18	

2 A 5 2 6 1

APPENDIX C-13-2 (Continued)

SITE = 20 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	109	54	18
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
IMMATURES W/O CAP. CHAETAE SP	109	18	54
ARTHROPODA			
ARACHNOIDEA			
ACARI	308	181	91
INSECTA			
COLEOPTERA			
UNIDENTIFIED			
LARVAE	18		
UNIDENTIFIED			
ADULTS		18	
DYTISCIDAE			
UNIDENTIFIED			
LARVAE			18
DERONECTES SP			
LARVAE			18
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE			18
DIPTERA			
UNIDENTIFIED			
PUPAE		18	

APPENDIX C-13-2 (Continued)

SITE = 20 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	217	253	163
CHIRONOMIDAE			
UNIDENTIFIED			
PUPAE	18		
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	18		18
CORYNONEURA SP			
LARVAE	18		
CRICOTOPUS SP			
LARVAE	91		18
CRICOTOPUS ISOCLADIUS			
LARVAE	54		
ORTHOCLADIUS SP			
LARVAE	393	36	72
PARAPHAENOCLADIUS SP			
LARVAE	36		
CHIRONOMINAE			
UNIDENTIFIED			
LARVAE	18		

APPENDIX C-13-2 (Continued)

SITE = 20 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE	18		
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	109	308	308
UNIDENTIFIED			
PUPAE	36	72	

APPENDIX C-13-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
NEMATODA	36		36
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
TUBIFICIDAE			
LIMNODRILUS UDEKEMIANUS			18
IMMATURES W/O CAP. CHAETAE SP	18		
NAIDIDAE			
NAIS SP	561		145
ARTHROPODA			
ARACHNOIDEA			
ACARI	1937	851	181
INSECTA			
COLLEMBOLA	217	54	36
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS			18
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE		18	
ODONATA			
UNIDENTIFIED			
LARVAE	18		

APPENDIX C-13-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
ODONATA			
ANISOPTERA			
GOMPHIDAE			
UNIDENTIFIED			
LARVAE	18		
PLECOPTERA			
SYSTELLOGNATHA			
PERLODIDAE			
ISOPERLA SP			
LARVAE			18
COLEOPTERA			
UNIDENTIFIED			
LARVAE	18		
DYTISCIDAE			
UNIDENTIFIED			
LARVAE	18	18	
TRICHOPTERA			
HYDROPTILIDAE			
UNIDENTIFIED			
LARVAE	18		
LEPIDOPTERA			
PYRALIDAE			
UNIDENTIFIED			
LARVAE		36	
DIPTERA			
UNIDENTIFIED			
PUPAE			18
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	597	145	91

2.4.5.369

APPENDIX C-13-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
TANYPODINAE			
PENTANEURINI SP			
LARVAE			18
THIENEMANNIMYIA GROUP SP			
LARVAE			18
ORTHOCLADIINAE			
UNIDENTIFIED			
LARVAE	163		18
CORYNONEURA SP			
LARVAE			18
CRICOTOPUS SP			
LARVAE	2208	525	54
CRICOTOPUS CRICOTOPUS			
LARVAE			235
CRICOTOPUS ISOCLADIUS			
LARVAE	91		36
EUKIEFFERIELLA SP			
LARVAE	163	54	54
ORTHOCLADIUS SP			
LARVAE	579	181	398

APPENDIX C-13-2 (Continued)

SITE = 21 SITE DESC = YELLOW CREEK COLLECTION METHOD = ELLIPSE SURBER CONVERSION FACTOR APPLIED= 18.1

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
PARAPHAENOCLADIUS SP			
LARVAE		127	362
ORTHOCLADIINAE SP. 1			
LARVAE			18
CHIRONOMINAE			
MICROPSECTRA SP			
LARVAE			18
RHEOTANYTARSUS SP			
LARVAE		16	36
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	1756	1303	1701
UNIDENTIFIED			
PUPAE	326	344	
SIMULIUM SP			
PUPAE			326

APPENDIX C-13-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE		20	
TUBIFICIDAE			
LIMNODRILUS SP. 1		20	
IMMATURES WITH CAP. CHAETAE SP			20
IMMATURES W/O CAP. CHAETAE SP	234	429	215
NAIDIDAE			
NAIS SP	156		20
ARTHROPODA			
INSECTA			
HEMIPTERA			
CORIXIDAE			
UNIDENTIFIED			
LARVAE		20	
COLEOPTERA			
DYTISCIDAE			
UNIDENTIFIED			
LARVAE			20
DIPTERA			
UNIDENTIFIED			
PUPAE		39	
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE	20		20

APPENDIX C-13-2 (Continued)

SITE = 22 SITE DESC = YELLOW CREEK COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
DIAMESINAE			
ODONTOMESA SP			
LARVAE	20		
ORTHOCLADIINAE			
ORTHOCLADIUS SP			
LARVAE		39	

APPENDIX C-13-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975
(D-frame samples are expressed as organisms/sample.)

	STATION 23 REPLICATE		
Sampling Method	A DF	B DF	C DF
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	1		
Tubifex tubifex			
Immature tubificids without capilliform chaetae	4	-	2
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae		1	3
Chironomidae pupae			
Tanypodinae			
Thienemannimyia			

[1]DF = D-Frame Sampler

APPENDIX C-13-2 (Continued)

	STATION 23		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa	1		
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae	4		3
Cryptochironomus	1		
Microtendipes	2	1	6
Paracladopelma			
Phaenopsectra			
Polypedilium fallax gp.			
Polypedilium tripodura gp.			
Stictochironomus	3		
Cladotanytarsus			
Rheotanytarsus	2		
Empididae			
Clinocera			
Rhagionidae			
Atherix variegata			
Simuliidae			
Simuliidae pupae			
Tipulidae			
Limnophila			
Acari	1		
Lepidoptera			

APPENDIX C-[illegible]-2 (Continued)

	STATION 23 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena			
Stenonema			
Heptagenia		1	
Baetidae			
Baetis		2	
Siphlonuridae			
Tricorythidae			
Tricorythodes	1		
Ephemerellidae			
Ephemerella	6	11	3
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla			
Isoperla fulva	1		
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 23					
	REPLICATE					
	A		B		C	
Sampling Method	D	F	D	F	D	F
Duberaphia						
Zaitzavia						
Trichoptera						
Brachycentridae						
Brachycentrus		1				
Micrasema						
Hydropsychidae						
Hydropsyche						
Cheumatopsyche						
Hydropsyche pupae						
Hydroptilidae						
Hydroptila						
Glossosomatidae						
Agapetus						

Sampling Method	STATION 24 REPLICATE A DF	B DF	C DF
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	23	7	9
Tubifex tubifex			
Immature tubificids without capilliform chaetae	11	8	2
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			1
Tanypodinae			
Thienemannimyia			

APPENDIX C-13-2 (Continued)

	STATION 24		
	REPLICATE		
Sampling Method	A DF	B DF	C DF
Diamesinae			
Diamesa			
Monodiamesa	1		1
Odontomesa			
Ortnocladiinae	3		
Cricotopus	5		
Cricotopus (Cricotopus)	1		
Eukiefferiella			
Chironomiinae	3	3	5
Cryptochironomus		1	
Microtendipes	16	8	12
Paracladopelma			
Phaenopsectra			
Polypedilium fallax gp.			
Polypedilium tripodura gp.	1	1	
Stictochironomus	1		
Cladotanytarsus	10		
Rheotanytarsus	4		1
Empididae			
Clinocera			
Rhagionidae			
Atherix variegata			
Simuliidae		1	
Simuliidae pupae			
Tipulidae			
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 24 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae	2		1
Ephemeroptera			
Heptageniidae		2	
Rhithrogena	1		1
Stenonema			
Heptagenia			
Baetidae			
Baetis	4	3	2
Siphlonuridae			
Tricorythidae	2	1	
Tricorythodes			
Ephemerellidae			
Ephemerella	14	25	15
Odonata			
Gomphidae			
Ophiocomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla		1	
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 24					
	REPLICATE					
	A		B		C	
Sampling Method	D	F	D	F	D	F
Duberaphia						
Zaitzavia						
Trichoptera						
Brachycentridae						
Brachycentrus						
Micrasema						
Hydropsychidae						
Hydropsyche		11		3		
Cheumatopsyche						1
Hydropsyche pupae						
Hydroptilidae						
Hydroptila				1		
Glossosomatidae						
Agapetus		3				

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 25 REPLICATE A DF	B DF	C DF
Nematoda			
Oligochaeta			
Naididae			
Nais	2		1
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus	2		
Limnodrilus hoffmeisteri	44	7	21
Tubifex tubifex			
Immature tubificids without capilliform chaetae	26	1	7
Insecta			
Collembola			
Diptera		2	
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			
Tanypodinae			
Thienemannimyia	2		1

APPENDIX C-13-2 (Continued)

	STATION 25		
	REPLICATE		
Sampling Method	A DF	B DF	C DF
Diamesinae			
Diamesa			
Monodiamesa	7	2	
Odontomesa			
Orthocladiinae	2		
Cricotopus			
Cricotopus (Cricotopus)	5		
Eukiefferiella	2		
Chironomiinae	2	4	4
Cryptochironomus	2	1	1
Microtendipes	14	14	29
Paracladopelma	2		
Phaenopsectra			
Polypedilium fallax gp.	2		
Polypedilium tripodura gp.	10		
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus		4	1
Empididae	6	1	
Clinocera			
Rhagionidae			
Atherix variegata	1		
Simuliidae	2		1
Simuliidae pupae			
Tipulidae	1	1	
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 25 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae	6	4	1
Ephemeroptera			
Heptageniidae	1		
Rhithrogena		1	4
Stenonema			
Heptagenia			
Baetidae			
Baetis	20	3	9
Siphlonuridae	4		
Tricorythidae			
Tricorythodes	27	8	7
Ephemerellidae	58	23	85
Ephemerella			
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae	7		
Isogenus	2	1	
Isoperla	3	3	
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae	1		

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 25 REPLICATE A DF	B DF	C DF
Duberaphia			
Zaitzavia			
Trichoptera	20		
Brachycentridae			
Brachycentrus			
Micrasema			
Hydropsychidae			
Hydropsyche	32	33	
Cheumatopsyche	10		1
Hydropsyche pupae	4		
Hydroptilidae			
Hydroptila	4	1	
Glossosomatidae			
Agapetus	4		

APPENDIX C-13-2 (Continued)

	STATION 26 REPLICATE		
Sampling Method	A DF	B DF	C DF
Nematoda			
Oligochaeta		16	
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni	1		
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri		11	2
Tubifex tubifex		7	
Immature tubificids without capilliform chaetae	8		2
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae		1	
Chironomidae pupae			
Tanypodinae			
Thienemannimyia			

APPENDIX C-13-2 (Continued)

	STATION 26		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa	1	1	1
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae			
Cryptochironomus			
Microtendipes	2	4	3
Paracladopelma			
Phaenopsectra			
Polypedilium fallax gp.	2		
Polypedilium tripodura gp.			
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus	1	1	
Empididae			
Clinocera			
Rhagionidae			
Atherix variegata		1	
Simuliidae		1	1
Simuliidae pupae			
Tipulidae			
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 26 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae	1		
Rhithrogena	1		3
Stenonema			
Heptagenia			
Baetidae			
Baetis	1	6	4
Siphlonuridae			
Tricorythidae	3	11	5
Tricorythodes			
Ephemerellidae			
Ephemerella	59	143	133
Odonata			
Gomphidae		3	3
Ophiogomphus			
Plecoptera			
Perlodidae			
Isocenus		1	2
Isoperla		11	4
Isoperla fulva	7		
Perlidae			
Claassenia			1
Claassenia sabulosa	4		
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 26		
	REPLICATE		
	A	B	C
Sampling Method	D F	D F	D F
Duberaphia			1
Zaitzavia			
Trichoptera			
Brachycentridae			
Brachycentrus			
Micrasema		1	
Hydropsychidae			1
Hydropsyche	16	60	26
Cheumatopsyche	6		
Hydropsyche pupae	2		
Hydroptilidae			
Hydroptila	1		2
Glossosomatidae		1	
Agapetus			

	STATION 27 REPLICATE		
Sampling Method	A DF	B DF	C DF
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	1		
Tubifex tubifex			
Immature tubificids without capilliform chaetae			
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae	5		
Chironomidae pupae			1
Tanypodinae			
Thienemannimyia			

APPENDIX C-13-2 (Continued)

	STATION 27		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa			
Odontomesa			
Orthocladiinae	1		
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae	1		3
Cryptochironomus			
Microtendipes			
Paracladopelma			
Phaenopsectra			
Polypedilium fallax gp.	3		
Polypedilium tripodura gp.			
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus			
Empididae		3	
Clinocera			
Rhagionidae			
Atherix variegata			
Simuliidae			1
Simuliidae pupae			
Tipulidae		1	
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 27 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena	1		
Stenonema			
Heptagenia			
Baetidae			
Baetis	1	1	1
Siphlonuridae			
Tricorythidae			
Tricorythodes			
Ephemerellidae			
Ephemerella	24	41	9
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla		3	
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 27					
	REPLICATE					
	A		B		C	
Sampling Method	D	F	D	F	D	F
Duberaphia						
Zaitzavia						
Trichoptera						
Brachycentridae						
Brachycentrus						
Micrasema						
Hydropsychidae						1
Hydropsyche						1
Cheumatopsyche						
Hydropsyche pupae						
Hydroptilidae						
Hydroptila				1		
Glossosomatidae						
Agapetus						

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 28 REPLICATE A DF	B DF	C DF
Nematoda		1	
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	1		
Tubifex tubifex			
Immature tubificids without capilliform chaetae			
Insecta			
Collembola			
Diptera		1	
Ceratopogonidae		1	
Chironomidae		2	
Chironomidae pupae			
Tanypodinae			
Thienemannimyia			

APPENDIX C-13-2 (Continued)

	STATION 28		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa	1	1	
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae		2	
Cryptochironomus			5
Microtendipes			
Paracladopelma			1
Phaenopsectra			
Polypedilum fallax gp.			
Polypedilum tripodura gp.			
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus	1		1
Empididae			
Clinocera			
Rhagionidae			
Atherix variegata			
Simuliidae			
Simuliidae pupae			
Tipulidae			
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 28 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena		1	1
Stenonema			
Heptagenia			2
Baetidae			
Baetis			2
Siphlonuridae			
Tricorythidae			
Tricorythodes			
Ephemerellidae			
Ephemerella			4
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla			1
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 28 REPLICATE A DF	B DF	C DF
Duberaphia			
Zaitzavia			
Trichoptera			1
Brachycentridae			
Brachycentrus			
Micrasema			
Hydropsychidae			
Hydropsyche			
Cheumatopsyche			
Hydropsyche pupae			
Hydroptilidae			
Hydroptila			
Glossosomatidae			
Agapetus			

APPENDIX C-13-2 (Continued)

	STATION 29 REPLICATE		
Sampling Method	A DE	B DE	C DE
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri			
Tubifex tubifex			
Immature tubificids without capilliform chaetae	1		
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			
Tanypodinae			
Tribelos jucundus			

APPENDIX C-13-2 (Continued)

	STATION 29		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa			
Odontomesa			
Ortnocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella	1		
Chironomiinae			
Cryptochironomus			
Microtendipes	1		
Paraclacopelma			
Phaenopsectra	2		
Polypedilum fallax gp.			
Polypedilum tricodura gp.			
Sciotochironomus			
Glyptotendipes			
Psectrocladius	1		
Empididae			
Ciniciera			
Anagnotidae			
Atherix variegata		3	19
Simuliidae	1		5
Simuliidae pupae			
Tipulidae			
Limnophila			
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 29 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena	5	4	2
Stenonema			
Heptagenia			
Baetidae		9	
Baetis	5		3
Siphlonuridae			
Tricorythidae			
Tricorythodes	2		2
Ephemerellidae			
Ephemerella	39	108	253
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus		2	1
Isoperla	1	1	6
Isoperla fulva	3		
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 29 REPLICATE A DF	B DF	C DF
Oeberaphia			
Baetisca			
Trichoptera			
Brachycentridae			6
Brachycentrus			
Micrasema			
Hydropsychidae			
Hydropsyche	2	2	10
Cheumatopsyche			3
Hydropsyche pupae			
Hydroptilidae			
Hydroptila			1
Glossosomatidae			
Agapetus			

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
NEMATODA	20		
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	39		
TUBIFICIDAE			
LIMNODRILUS HOFFMEISTERI			
TYPICAL			20
NAIDIDAE			
NAIS SP			
--	20		
ARTHROPODA			
ARACHNOIDEA			
ACARI	20		
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS			59
BAETIS SP			
LARVAE		78	59
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	20	20	
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE		78	78

APPENDIX C-13-2 (Continued)

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPSYCHIDAE			
UNIDENTIFIED			20
LARVAE			
HYDROPSYCHE SP		59	59
LARVAE			
DIPTERA			
TIPULIDAE			
UNIDENTIFIED		20	
LARVAE			
DAMOSIA SP			20
LARVAE			
LIMNOPHILA SP	20		
LARVAE			
CERATOPOGONIDAE			
UNIDENTIFIED	39		
LARVAE			
CHIRONOMIDAE			
ORTHOCLADIINAE			
EUKIEFFERIELLA SP		20	
LARVAE			
ORTHOCLADIUS SP			20
LARVAE			
THIENEMANNIELLA SP	39		
LARVAE			

APPENDIX C-13-2 (Continued)

SITE = 30 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
DIPTERA			
CHIRONOMIDAE			
ORTHOCLADIINAE			
ORTHOCLADIINAE SP. 1			
LARVAE			20
CHIRONOMINAE			
MICROTENDIPES SP			
LARVAE			20
POLYPEDILUM TRIPODURA GRP.			
LARVAE			20
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	137	2282	1619

APPENDIX C-13-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ANNELIDA			
OLIGOCHAETA			
HAPLOTAXIDA			
ENCHYTRAEIDAE	20		
TUBIFICIDAE			
LIMNODRILUS CLAPAREDEIANUS			
TYPICAL		20	
LIMNODRILUS HOFFMEISTERI			
TYPICAL		98	
IMMATURES W/O CAP. CHAETAE SP		39	
ARTHROPODA			
INSECTA			
EPHEMEROPTERA			
BAETIDAE			
UNIDENTIFIED			
ADULTS			59
BAETIS SP			
LARVAE	98	156	
HEPTAGENIIDAE			
RHITHROGENA SP			
LARVAE	20	39	
EPHEMERELLIDAE			
EPHEMERELLA SP			
LARVAE		78	20
TRICHOPTERA			
HYDROPSYCHIDAE			
HYDROPSYCHE SP			
LARVAE	39		

APPENDIX C-13-2 (Continued)

SITE = 31 SITE DESC = WHITE RIVER COLLECTION METHOD = TALL CIRCLE SURBER CONVERSION FACTOR APPLIED= 19.5

TAXON	REP A	REP B	REP C
ARTHROPODA			
INSECTA			
TRICHOPTERA			
HYDROPTILIDAE			
HYDROPTILA SP			
LARVAE	20		
DIPTERA			
TIPULIDAE			
ORMOSIA SP			
LARVAE			20
CERATOPOGONIDAE			
UNIDENTIFIED			
LARVAE			20
CHIRONOMIDAE			
ORTHOCLADIINAE			
CRICOTOPUS ISOCLADIUS			
LARVAE	20	39	
THIENEMANNIELLA SP			
LARVAE		20	
SIMULIIDAE			
UNIDENTIFIED			
LARVAE	78	59	20
DOLICHOPODIDAE			
HYDROPHORUS SP			
LARVAE	20		

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 32 REPLICATE A DE	B DE	C DE
Nematoda			1
Oligochaeta		6	
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus	1		1
Limnodrilus hoffmeisteri	15		17
Peloscolex ferox	9		8
Immature tubificids without capilliform chaetae			
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae			
Chironomidae pupae	5		3
Tanypodinae			
Tribe Pentaneurini			

APPENDIX C-13-2 (Continued)

	STATION 32		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa	1		
Monodiamesa	3	2	1
Odontomesa	1		
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae	9	3	2
Cryptochironomus	2		
Microtendipes	9	1	2
Paracladopelma			
Phaenopsectra			
Polypedilium fallax gp.			
Polypedilium tridocura gp.			
Stictochironomus	1		4
Cladotanytarsus			
Rheotanytarsus	7		1
Empididae			
Clinocera			
Rhagionidae			
Atherix variegata			
Simuliidae		1	
Simuliidae pupae	1		
Tipulidae			
Limnophila	1		2
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

Sampling Method	STATION 32 REPLICATE A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena	1	1	
Stenonema			1
Heptagenia			
Baetidae			
Baetis			
Siphlonuridae			
Tricorythidae			
Tricorythodes	1	1	5
Ephemerellidae			
Ephemerella	15	3	5
Odonata			
Gomphidae			
Ophiogomphus	1		
Plecoptera			
Perlodidae			
Isogenus			
Isoperla			
Isoperla fulva	1		
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

STATION 32

Sampling Method	REPLICATE A DF	REPLICATE B DF	REPLICATE C DF
Duberaphia			
Baltzavia			
Trichoptera			
Brachycentricae			
Brachycentrus			
Micrasema			
Hydropsychidae		1	
Hydropsyche	3		
Cheumatopsyche			1
Hydropsyche pupae			
Hydroptilidae			
Hydroptila			
Glossosomatidae			
Agapetus			

APPENDIX C-13-2 (Continued)

	STATION: 33		
	REPLICATE		
Sampling Method	A DE	B DE	C DE
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri			
Tubifex tubifex			
Immature tubificids without capilliform chaetae			
Insecta			
Collembola			
Diptera			
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			
Tanypodinae			
Tanytarsini			

APPENDIX C-13-2 (Continued)

	STATION 33		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa			
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae			
Cryptochironomus			
Microtendipes			
Paraclacopelma			
Phaenopsectra			
Polypedilum fallax gp.			
Polypedilum trigodura gp.			
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus			
Empididae			
Diptera			
Rhagionidae			
Atherix variegata			
Simuliidae	1		
Simuliidae pupae			
Tipulidae	1		
Limnophila			2
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 33 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena		1	
Stenonema			
Heptagenia			
Baetidae			
Baetis		1	
Siphlonuridae			
Tricorythidae			
Tricorythodes	1		
Ephemerellidae			
Ephemerella	9	4	1
Odonata			
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla	1		
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 33					
	REPLICATE					
	A		B		C	
Sampling Method	D	F	D	F	D	F
Doberaphia						
Zaitzevia						
Trichoptera						
Brachycentridae						
Brachycentrus						
Micrasema						
Hydropsychidae						
Hydropsyche			3			
Cheumatopsyche						
Hydropsyche pupae						
Hydroptilidae						
Hydroptila						
Glossosomatidae						
Agapetus						

APPENDIX C-13-2 (Continued)

	STATION 34		
	REPLICATE		
	A	B	C
Sampling Method	DE	DE	DE
Nematoda			
Oligochaeta			
Naididae			
Nais			
Tubificidae			
Limnodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri			
Tubifex tubifex			
Immature tubificids without capilliform chaetae	1		
Insecta			
Collembola			
Diptera	2		
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			
Tanypodinae			
Tribelos neomydia			

APPENDIX C-13-2 (Continued)

	STATION 34		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa	1		
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae			
Cryptochironomus			
Microtendipes	1		
Paracladopelma			
Phaenopsectra			
Polypedilum fallax gp.			
Polypedilum trigonura gp.			
Stictochironomus	1		
Cladotanytarsus			
Rheotanytarsus			
Empididae			
Ceratopogonidae			
Chaoboridae			
Atherix variegata			
Simuliidae			
Simuliidae pupae		1	
Tipulidae			
Limnophila			2
Acari			
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 34 REPLICATE		
Sampling Method	A DE	B DE	C DE
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena			
Stenonema			
Heptagenia			
Baetidae			
Baetis			
Siphlonuridae	2	2	1
Tricorythidae			
Tricorythodes			
Ephemerellidae			
Ephemerella			
Odonata	6	3	4
Gomphidae			
Ophiogomphus			
Plecoptera			
Perlodidae			
Isoperla			
Isogenia			
Isoperla fulva			
Perlidae			
Claassenia			
Claassenia sabulosa			
Hemiptera			
Corixidae			
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 35		
	REPLICATE		
Sampling Method	A PE	B PE	C PE
Nematoda			
Oligochaeta			
Naididae			
Nais			1
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	1		
Tubifex tubifex			
Immature tubificids without capilliform chaetae			
Insecta			
Collembola		1	
Diptera		1	
Ceratopogonidae			
Chironomidae			
Chironomidae Pupae			
Tanypodinae	1		
Trichomacromia			

APPENDIX C-13-2 (Continued)

	STATION 35		
	REPLICATE		
Sampling Method	A DE	B DE	C DE
Nematoda			
Oligochaeta			
Naididae			
Nais			1
Tubificidae			
Ilyodrilus templetoni			
Limnodrilus claparedeianus			
Limnodrilus hoffmeisteri	1		
Tubifex tubifex			
Immature tubificids without capilliform chaetae			
Insecta			
Collembola		1	
Diptera		1	
Ceratopogonidae			
Chironomidae			
Chironomidae pupae			
Tanypodinae	1		
Tribelos jucundus			

APPENDIX C-13-2 (Continued)

	STATION 35		
	REPLICATE		
	A	B	C
Sampling Method	DF	DF	DF
Diamesinae			
Diamesa			
Monodiamesa			
Odontomesa			
Orthocladiinae			
Cricotopus			
Cricotopus (Cricotopus)			
Eukiefferiella			
Chironomiinae			
Cryptochironomus		2	
Microtendipes	1	1	1
Paracladopelma			
Phaenopsectra			
Polypedilum fallax gp.		1	
Polypedilum tribocura gp.		4	2
Stictochironomus			
Cladotanytarsus			
Rheotanytarsus	3	19	7
Empididae			
Clinocera			
Anagnotidae			
Atherix variegata			1
Simuliidae			3
Simuliidae pupae		3	
Tipulidae			
Limnophila			1
Acari			1
Lepidoptera			

APPENDIX C-13-2 (Continued)

	STATION 35 REPLICATE		
Sampling Method	A DF	B DF	C DF
Pyralidae			
Ephemeroptera			
Heptageniidae			
Rhithrogena			1
Stenonema		1	
Heptagenia	7		3
Baetidae			
Baetis	1	14	11
Siphlonuridae			
Tricorythidae			
Tricorythodes	15	10	54
Ephemerellidae			
Ephemerella	30	111	305
Odonata			
Gomphidae	1		1
Ophiogomphus			
Plecoptera			
Perlodidae			
Isogenus			
Isoperla	1	3	
Isoperla fulva			
Perlidae			
Claassenia			1
Claassenia sabulosa			
Hemiptera			
Corixidae			1
Coleoptera			
Elmidae			

APPENDIX C-13-2 (Continued)

	STATION 35		
	REPLICATE		
	A	B	C
Sampling Method	D F	D F	D F
Duberaphia			1
Zaitzavia			1
Trichoptera			7
Brachycentridae			
Brachycentrus			
Micrasema			
Hydropsychidae			3
Hydropsyche	1		8
Cheumatopsyche			1
Hydropsyche pupae			
Hydroptilidae			
Hydroptila			
Glossosomatidae			
Agapetus			

APPENDIX C-14-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES
JULY - AUGUST 1975

APPENDIX C-14-1

MACROINVERTEBRATE TAXA OBSERVED DURING
RBOSP AQUATIC BASELINE STUDIES, JULY - AUGUST 1975

Cnidaria
  Hydrozoa
    Hydridae
      Hydra

Nematoda

Mollusca
  Gastropoda
    Physidae
      Physa
    Lymnaeidae
      Lymnaea Lamarck
    Planorbidae

Annelida
  Hirudinea
    Rhynchobdellida
    Glossiphoniidae
      Helobdella stagnalis (Linnaeus)

  Oligochaeta

Arthropoda
  Arachnoidea
    Acari
  Crustacea
    Amphipoda
    Talitridae
    Hyalella azteca (Saussure)

Insecta
  Collembola
  Ephemeroptera
    Baetidae
      Baetis Leach
      Callibaetis Eaton
    Heptageniidae
      Rhithrogena Eaton
    Ephemerellidae
      Ephemerella Walsh
    Tricorythidae
      Tricorythodes Ulmer
    Caenidae
      Caenis

Odonata
  Zygoptera
    Coenagrionidae
  Anisoptera
    Gomphidae

Hemiptera
    Gerridae
      Gerris

Coleoptera
    Dytiscidae
      Agabus
      Deronectes Sharp
      Oreodytes Seidlitz
    Hydrophilidae
    Elmidae
      Zaitzevia Champion

Trichoptera
    Hydropsychidae
      Cheumatopsyche
      Hydropsyche Pictet
    Hydroptilidae
      Hydroptila Dalman
    Limnephilidae
    Leptoceridae
    Brachycentridae

Lepidoptera
    Pyralidae

Diptera
    Tipulidae
      Holorusia Loew
      Limnophila
    Ceratopogonidae
    Chironomidae
    Simuliidae
      Simulium arcticum
      S. argus Williston
      S. vittatum Zetterstedt
    Stratiomyidae
      Euparyphus Gerstaecker
    Tabanidae
      Tabanus
    Rhagionidae
      Atherix variegata Walker

Empididae
Muscidae
Anthomyiidae
  Limnophora aequifrons Stein

APPENDIX C-14-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED
DURING RBOSP AQUATIC BASELINE STUDIES
JULY - AUGUST 1975

APPENDIX C-14-2

DENSITIES OF BENTHOS (MACROINVERTEBRATES) OBSERVED DURING RBOSP AQUATIC BASELINE STUDIES, JULY - AUGUST 1975

Sampling Method[1]	STATION REPLICATE 1 ES	1 A	2 ES	2 A	3 ES	3 A	4 ES	4 A	5 ES	5 A
Hydroza										
Hydridae										
Hydra										
Nematoda			18		36		109		5702	
Gastropoda										
Physidae									109	
Physa									18	
Lymnaeidae										
Lymnaea										
Planorbidae									36	
Hirundinae										
Rhynchobdellida										
Glossiphoniidae										
Helobdella stagnalis									145	
Oligochaeta									18806	
Arachnoidea										
Acari									163	
Crustacea										
Amphipoda										
Talitridae										
Hyallela azteca									561	

[1]Sampling Method: ES = Elliptical Modified Surber TS = Tall Modified Surber
ED = Ekman Dredge DF = D Frame

APPENDIX C-14-2 (Continued)

Sampling Method	STATION[2] REPLICATE 1 ES	1 A	2 ES	2 A	3 ES	3 A	4 ES	4 A	5 ES	5 A
Collembola										18
Ephemeroptera										
Heptageniidae										
Epeorus										
Rhithrogena										
Baetidae		91		434				905		181
Baetis		344		1050		18		109		217
Callibaetis										145
Ephemerellidaen										
Ephemerella										
Tricorythidae										
Tricorythodes										
Caenidae										
Caenis										36
Zygoptera										
Coenagrionidae										72
Anisoptera										
Gomphidae										
Hemiptera										
Gerridae										
Gerris										
Coleoptera		54				18		36		

[2]Stations 6, 10 - 12 and 16 were dry at the time of sampling.

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 1 ES	1 A	2 ES	2 A	3 ES	3 A	4 ES	4 A	5 ES	5 A
Dytiscidae		18		18				54		18
Agabus										
Deronectes										
Oreodytes										36
Hydrophilidae						18				18
Elmidae										
Zaitzevia										
Trichoptera										36
Hydropsychidae										
Cheumatopsyche										
Hydropsyche										18
Hydroptilidae										
Hydroptila										72
Limnephilidae		18								
Leptoceridae										
Brachycentridae										
Lepidoptera										
Pyralidae										
Diptera		18								
Tipulidae								217		
Dicranota		127		18						
Holorusia				145				109		18
Limnophila										
Ceratopogonidae										3910
Chironomidae		851		1502		3674		5340		3385
Simuliidae		36		380		72		1611		9358
Simulium articum										
S. argus										

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 1 ES	1 A	2 ES	2 A	3 ES	3 A	4 ES	4 A	5 ES	5 A
S. vittatum										54
Stratiomyidae	36				18					
Euparyphus	18									
Tabanidae										
Tabanus								18		
Rhagionidae										
Atherix variegata										
Empididae										
Muscidae										
Anthomyiidae										
Limnophora aequifrons	217							145		

APPENDIC C-14-2 (Continued)

Sampling Method	STATION REPLICATE 15 ES A	17 ES A	18 ES A	19 ES A	20 ES A
Hydroza					
Hydridae					
Hydra				18	
Nematoda		18			434
Gastropoda					
Physidae					
Physa					
Lymnaeidae					
Lymnaea					
Planorbidae					
Hirundinae					
Rhynchobdellida					
Glossiphoniidae					
Helobdella stagnalis					
Oligochaeta	109	72	18	91	2335
Arachnoidea					
Acari					
Crustacea					
Amphipoda					
Talitridae					
Hyallela azteca				326	18

APPENDIX C-14-2 (Continued)

Sampling Method	STATION 15 REPLICATE ES	15 A	17 ES	17 A	18 ES	18 A	19 ES	19 A	20 ES	20 A
Collembola										
Ephemeroptera										
Heptageniidae										
Epeorus										
Rhithrogena										
Baetidae										
Baetis										
Callibaetis										
Ephemerellidaen										
Ephemerella										
Tricorythidae										
Tricorythodes		18						54		18
Caenidae										
Caenis										
Zygoptera										
Coenagrionidae		36						109		
Anisoptera										
Gomphidae										36
Hemiptera										
Gerridae										
Gerris								18		
Coleoptera										72

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 15 ES A	17 ES A	18 ES A	19 ES A	20 ES A
Dytiscidae					18
Agabus					
Deronectes				18	36
Oreodytes					
Hydrophilidae					
Elmidae				36	
Zaitzevia					
Trichoptera					
Hydropsychidae					
Cheumatopsyche					
Hydropsyche					
Hydroptilidae					
Hydroptila	18				
Limnephilidae					
Leptoceridae					
Brachycentridae					
Lepidoptera					
Pyralidae					
Diptera					
Tipulidae					
Dicranota					
Holorusia					
Limnophila					
Ceratopogonidae				54	1140
Chironomidae	2353	36	18	996	109
Simuliidae				833	398
Simulium articum				18	
S. argus			18		54

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 15 ES A	17 ES A	18 ES A	19 ES A	20 ES A
S. vittatum					
Stratiomyidae					
Euparyphus					
Tabanidae					
Tabanus					
Rhagionidae					
Atherix variegata					
Empididae					
Muscidae		18			
Anthomyiidae					
Limnophora aequifrons					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 21 ES A	22 ES A	23 TS A	24 TS A	25 DF A
Hydroza					
Hydridae					
Hydra					
Nematoda	36		20		
Gastropoda					
Physidae					
Physa					
Lymnaeidae					
Lymnaea					
Planorbidae					
Hirundinae					
Rhynchobdellida					
Glossiphoniidae					
Helobdella stagnalis					
Oligochaeta	36	145			
Arachnoidea					
Acari	109				
Crustacea					
Amphipoda					
Talitridae					
Hyallela azteca					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 21 ES A	22 ES A	23 TS A	24 TS A	25 DF A
Collembola					
Ephemeroptera					
Heptageniidae					
Epeorus					8
Rhithrogena					
Baetidae					
Baetis					
Callibaetis					
Ephemerellidaen				20	4
Ephemerella					
Tricorythidae					
Tricorythodes					
Caenidae					
Caenis					
Zygoptera					
Coenagrionidae		18			
Anisoptera					
Gomphidae					
Hemiptera					
Gerridae					
Gerris					
Coleoptera	18	18			

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 21 ES A	22 ES A	23 TS A	24 TS A	25 DF A
Dytiscidae					
Agabus					
Deronectes					
Oreodytes					
Hydrophilidae					1
Elmidae					
Zaitzevia					
Trichoptera					1
Hydropsychidae				78	2
Cheumatopsyche					
Hydropsyche					
Hydroptilidae					
Hydroptila					
Limnephilidae					3
Leptoceridae					
Brachycentridae					
Lepidoptera					
Pyralidae					
Diptera					
Tipulidae					
Dicranota					1
Holorusia					
Limnophila					
Ceratopogonidae	91	18			
Chironomidae	127	181	39	59	1
Simuliidae	561				
Simulium articum					
S. argus	109				

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 21 ES A	22 ES A	23 TS A	24 TS A	25 DF A
S. vittatum					
Stratiomyidae					
Euparyphus					
Tabanidae					
Tabanus					
Rhagionidae					
Atherix variegata					1
Empididae					
Muscidae					
Anthomyiidae					
Limnophora aequifrons					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 26 TS	26 A	27 TS	27 A	28 TS	28 A	29 TS	29 A	30 TS	30 A
Hydroza		39		20		39				20
Hydridae										
Hydra										
Nematoda										
Gastropoda										
Physidae										
Physa										
Lymnaeidae										
Lymnaea										
Planorbidae										
Hirundinae										
Rhynchobdellida										
Glossiphoniidae										
Helobdella stagnalis										
Oligochaeta		293		59		507		3159		78
Arachnoidea						20				20
Acari										
Crustacea										
Amphipoda										
Talitridae										
Hyallela azteca										

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 26 TS	26 A	27 TS	27 A	28 TS	28 A	29 TS	29 A	30 TS	30 A
Collembola										20
Ephemeroptera										
Heptageniidae										
Epeorus										
Rhithrogena								59		
Baetidae										
Baetis										
Callibaetis										
Ephemerellidaen										
Ephemerella		20								20
Tricorythidae										
Tricorythodes										
Caenidae										
Caenis										
Zygoptera										
Coenagrionidae										
Anisoptera										
Gomphidae										
Hemiptera										
Gerridae										
Gerris										
Coleoptera										

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 26 TS	26 A	27 TS	27 A	28 TS	28 A	29 TS	29 A	30 TS	30 A
Dytiscidae										
Agabus										
Deronectes										
Oreodytes										
Hydrophilidae										
Elmidae										
Zaitzevia										
Trichoptera										
Hydropsychidae										
Cheumatopsyche	20									
Hydropsyche	39									
Hydroptilidae										
Hydroptila	20									
Limnephilidae										
Leptoceridae	20									
Brachycentridae										
Lepidoptera										
Pyralidae							20			
Diptera	20						20			
Tipulidae										
Dicranota										
Holorusia										
Limnophila										
Ceratopogonidae							20			
Chironomidae	78		39		59		98		20	
Simuliidae										
Simulium articum										
S. argus										

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 26 ES A	27 TS A	28 TS A	29 TS A	30 TS A
S. vittatum					
Stratiomyidae					
Euparyphus					
Tabanidae					
Tabanus					
Rhagionidae					
Atherix variegata					
Empididae					
Muscidae					
Anthomyiidae					
Limnophora aequifrons					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 31 DF A	32 TS A	33 TS A	34 TS A	35 TS A
Hydroza					
Hydridae					
Hydra					20
Nematoda	2				
Gastropoda					
Physidae					
Physa					
Lymnaeidae					
Lymnaea					
Planorbidae					
Hirundinae					
Rhynchobdellida					
Glossiphoniidae					
Helobdella stagnalis					
Oligochaeta		78	39		78
Arachnoidea					
Acari		20			
Crustacea					
Amphipoda					
Talitridae					
Hyallela azteca					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 31 DF A	32 TS A	33 TS A	34 TS A	35 TS A
Collembola				20	
Ephemeroptera					
Heptageniidae					
Epeorus					
Rhithrogena	2			20	98
Baetidae					
Baetis					
Callibaetis					
Ephemerellidaen					
Ephemerella	2				
Tricorythidae					
Tricorythodes			20		
Caenidae					
Caenis					
Zygoptera					
Coenagrionidae					
Anisoptera					
Gomphidae					
Hemiptera					
Gerridae					
Gerris					
Coleoptera					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 31 DF A	32 TS A	33 TS A	34 TS A	35 TS A
Dytiscidae					
Agabus					
Deronectes					
Oreodytes					
Hydrophilidae					
Elmidae					
Zaitzevia					
Trichoptera					
Hydropsychidae					
Cheumatopsyche					
Hydropsyche	1				
Hydroptilidae				20	
Hydroptila					
Limnephilidae					
Leptoceridae					
Brachycentridae					
Lepidoptera					
Pyralidae					
Diptera					
Tipulidae					
Dicranota					
Holorusia					
Limnophila	1		39		
Ceratopogonidae					
Chironomidae	2	20	20	20	20
Simuliidae					
Simulium articum					
S. argus					

APPENDIX C-14-2 (Continued)

	STATION REPLICATE				
	7	8	9	13	14
Sampling Method	ES A	ES A	ES A	ES A	ED A
Hydroza					
Hydridae					
Hydra					
Nematoda	36	18	36		19
Gastropoda					
Physidae					
Physa					
Lymnaeidae					
Lymnaea					
Planorbidae					
Hirundinae					
Rhynchobdellida					
Glossiphoniidae					
Helobdella stagnalis					
Oligochaeta	109		253	18	86
Arachnoidea					
Acari					43
Crustacea					
Amphipoda					
Talitridae					
Hyallela azteca					

APPENDIX C-14-2 (Continued)

Sampling Method	STATION / REPLICATE 7 ES A	8 ES A	9 ES A	13 ES A	14 ED A
Collembola					
Ephemeroptera					
Heptageniidae					
Epeorus					
Rhithrogena					
Baetidae	290		742	36	
Baetis	145	199	18		
Callibaetis					86
Ephemerellidaen					
Ephemerella					
Tricorythidae					
Tricorythodes					
Caenidae					
Caenis					
Zygoptera					
Coenagrionidae					
Anisoptera					
Gomphidae					
Hemiptera					
Gerridae					
Gerris					
Coleoptera	72		36		

APPENDIX C-14-2 (Continued)

	STATION REPLICATE				
	7	8	9	13	14
Sampling Method	ES A	ES A	ES A	ES A	ED A
Dytiscidae		18	18		
Agabus			18		
Deronectes					
Oreodytes					86
Hydrophilidae					
Elmidae					
Zaitzevia					
Trichoptera					
Hydropsychidae					
Cheumatopsyche					
Hydropsyche					
Hydroptilidae					
Hydroptila					
Limnephilidae					
Leptoceridae					
Brachycentridae					
Lepidoptera					
Pyralidae					
Diptera					
Tipulidae					
Dicranota					
Holorusia			18		
Limnophila					
Ceratopogonidae	18				129
Chironomidae	2045	344	1430	145	5383
Simuliidae	181	18	1484		43
Simulium articum					
S. arcus	36				

APPENDIX C-14-2 (Continued)

Sampling Method	STATION REPLICATE 7 ES A	8 ES A	9 ES A	13 ES A	14 ED A
S. vittatum					
Stratiomyidae					
Euparyphus					
Tabanidae					
Tabanus					
Rhagionidae					
Atherix variegata					
Empididae	18				
Muscidae	36	18	54	18	
Anthomyiidae					
Limnophora aequifrons			72		

2.4.6 Sediment Chemistry

2.4.6.1 Objectives

The objectives of the sediment chemistry studies remain unchanged from Progress Report 2. See section 2.4.6.1 of Progress Report 2 for specific objectives.

2.4.6.2 Methods

With the exception of analysis for arsenic which consists of a digestion procedure (EPA. 1973) followed by colorimetric analysis according to APHA (1971), no change in methods has occurred since Progress Report 3. See section 2.4.5.2 and 2.4.6.2 of Progress Reports 2 and 3, respectively, for specific methods used for sediment chemistry studies.

2.4.6.3 Results

Appendix C-15-1, C-16-1 and C-16-2 present the results of chemical analysis of sediment samples taken during the April and May - June 1975 sampling periods. A summary of selected parameters included in the May - June analyses for the White River and Yellow Creek are presented below. In general, concentrations of the selected parameters were similar in the two streams during the May - June sampling period.

	White River	Yellow Creek
Aluminum (µg/g)	3400 - 10,000	4700 - 10,000
Arsenic (µg/g)	4 - 6	5 - 9
Lead (µg/g)	4 - 6	6 - 9
Zinc (µg/g)	20 - 58	24 - 56

2.4.6 - Sediment Chemistry Data

2.4.6 - Sediment Chemistry

APPENDIX C-15-1

RESULTS OF SEDIMENT CHEMISTRY ANALYSIS
DURING RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

APPENDIX C-15-1

RESULTS OF SEDIMENT CHEMISTRY ANALYSIS DURING RBOSP AQUATIC BASELINE STUDIES, APRIL 1975 (Results are expressed in µg/g)[1]

Station Replicate	Parameter As
1-A	39
1-B	35
2-A	17
2-B	17
3-A	11
3-B	10
4-A	15
4-B	16
5-A	4
5-B	4
7-A	10
7-B	11
8-A	11
8-B	10
9-A	13
9-B	9
13-A	7
13-B	7
14-A	5
14-B	6
19-A	5
19-B	4
20-A	7
20-B	7
21-A	6
21-B	5
22-A	5
22-B	5
23-A	3
23-B	3
24-A	5
24-B	5
25-A	11
25-B	9

[1]Stations 6, 10-12, and 15-18 were dry at the time of sampling.

APPENDIX C-15-1 (Continued)

Station Replicate	Parameter As
26-A	7
26-B	6
27-A	3
27-B	3
28-A	6
28-B	6
29-A	5
29-B	5
30-A	7
30-B	3
31-A	7
31-B	3
32-A	5
32-B	6
33-A	8
33-B	7
34-A	6
34-B	6
35-A	5
35-B	5

APPENDIX C-16-1

RESULTS OF SEDIMENT CHEMISTRY ANALYSIS DURING
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-16-1

RESULTS OF SEDIMENT CHEMISTRY ANALYSIS DURING RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975 (Results are expressed in µg/g unless otherwise noted)

STATION[1] REPLICATE	PARAMETER							
	Al	As	Pb	Hg (µg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
1-A	15,700	25	23	<50	1,822	957	76,900	83
1-B	15,200	24	20	<50	1,862	938	73,900	85
2-A	12,900	18	16	<50	956	919	50,400	62
2-B	12,600	18	15	<50	939	948	46,700	54
3-A	11,900	8	10	<50	1,478	876	57,500	50
3-B	10,700	8	10	<50	1,404	841	58,000	56
4-A	13,800	17	15	<50	610	844	40,400	50
4-B	12,700	19	16	<50	735	804	44,200	50
5-A	13,800	5	10	<47	768	646	31,800	52
5-B	17,700	6	10	<49	778	666	32,600	48
6-A	13,800	15	15	<50	614	714	41,000	53
6-B	14,400	17	17	<50	566	696	37,500	54
7-A	12,300	9	10	<50	1,184	787	43,200	88
7-B	13,200	8	10	<50	1,216	798	41,700	88
8-A	10,200	11	12	<50	259	653	26,800	42
8-B	10,200	12	11	<50	261	676	24,000	38
9-A	15,500	13	29	49	1,110	798	50,300	61
9-B	13,000	11	29	<50	1,134	860	48,400	59
13-A	12,000	9	11	<50	255	727	26,100	46
13-B	12,500	9	11	<50	266	668	28,500	43

[1] Stations 10-12 and 15-18 were dry at the time of sampling.

APPENDIX C-16-1 (Continued)

STATION[1] REPLICATE	PARAMETER Al	As	Pb	Hg (µg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
14-A	15,700	5	8	<50	506	572	32,900	41
14-B	14,900	5	8	<50	521	565	33,000	43
19-A	17,700	5	9	<50	1,995	773	52,600	56
19-B	14,400	5	9	<50	1,089	725	48,300	48
20-A	4,800	7	7	99	181	530	21,000	29
20-B	5,700	7	6	<50	190	527	18,900	24
21-A	4,900	8	7	<172	184	599	17,100	25
21-B	4,700	9	7	<99	166	506	16,800	26
22-A	9.500	6	7	<50	320	555	22,700	31
22-B	11,100	5	6	<49	319	585	24,000	31
23-A	4,100	5	5	<50	170	392	10,300	21
23-B	4,200	5	5	<50	182	385	10,300	20
24-A	10,000	5	5	<49	513	661	26,100	58
24-B	27,500	6	5	<49	497	612	21,700	53
25-A	6,700	5	6	<49	305	536	17,000	33
25-B	7,100	4	6	<49	302	550	17,700	29
26-A	3,400	6	4	<50	127	423	9,640	20
26-B	3,700	5	4	<50	146	441	10,500	22
27-A	7,300	5	4	<50	235	497	15,000	26
27-B	7,700	5	4	<49	251	513	14,900	30
28-A	6,000	5	4	<49	223	425	11,300	24
28-B	5,400	5	4	<50	221	399	13,000	23
29-A	6,000	6	5	<49	237	442	14,800	24
29-B	5,900	5	5	<49	232	442	16,700	25

APPENDIX C-16-1 (Continued)

STATION[1] REPLICATE	PARAMETER							
	Al	As	Pb	Hg (µg/g)	KJELDAHL N	TOTAL P	VOLATILE SOLIDS	Zn
30-A	4,300	6	5	<50	175	415	13,000	27
30-B	4,900	6	6	<49	199	433	12,300	30
31-A	4,800	6	5	<50	169	412	11,100	22
31-B	4,600	6	5	<50	148	399	10,600	22
32-A	4,200	6	5	<50	203	478	14,600	22
32-B	5,000	6	6	<50	192	433	13,000	22
33-A	6,200	6	4	<49	495	559	23,800	27
33-B	7,300	5	6	<50	510	538	23,000	33
34-A	5,100	4	4	<49	200	468	13,600	21
34-B	5,200	5	3	<50	174	438	12,600	22
35-A	5,600	6	4	<49	270	455	15,400	25
35-B	6,900	5	4	<50	270	462	16,000	26

APPENDIX C-16-2

RESULTS OF SEDIMENT HERBICIDE ANALYSIS
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-16-2

RESULTS OF SEDIMENT HERBICIDE ANALYSIS, RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975. (Data are expressed in mg/l.)[1]

Station	Parameter	
	Tordon 22k	Silvex
1-A	<0.02	<0.02
1-B	<0.02	<0.02
2-A	<0.02	<0.02
2-B	<0.02	<0.02
3-A	<0.02	<0.02
3-B	<0.02	<0.02
4-A	<0.02	<0.02
4-B	<0.02	<0.02
5-A	<0.02	<0.02
5-B	<0.02	<0.02
6-A	<0.02	<0.02
6-B	<0.02	<0.02
7-A	<0.02	<0.02
7-B	<0.02	<0.02
8-A	<0.02	<0.02
8-B	<0.02	<0.02
9-A	<0.02	<0.02
9-B	<0.02	<0.02
13-A	<0.02	<0.02
13-B	<0.02	<0.02
14-A	<0.02	<0.02
14-B	<0.02	<0.02
19-A	<0.02	<0.02
19-B	<0.02	<0.02
20-A	<0.02	<0.02
20-B	<0.02	<0.02
21-A	<0.02	<0.02
21-B	<0.02	<0.02
22-A	<0.02	<0.02
22-B	<0.02	<0.02
23-A	<0.02	<0.02
23-B	<0.02	<0.02
24-A	<0.02	<0.02
24-B	<0.02	<0.02
25-A	<0.02	<0.02
25-B	<0.02	<0.02

[1] Stations 10-12 and 15-18 were dry at the time of sampling.

APPENDIX C-16-2 (Continued)

Station	Parameter	
	Tordon 22k	Silvex
26-A	<0.02	<0.02
26-B	<0.02	<0.02
27-A	<0.02	<0.02
27-B	<0.02	<0.02
28-A	<0.02	<0.02
28-B	<0.02	<0.02
29-A	<0.02	<0.02
29-B	<0.02	<0.02
30-A	<0.02	<0.02
30-B	<0.02	<0.02
31-A	<0.02	<0.02
31-B	<0.02	<0.02
32-A	<0.02	<0.02
32-B	<0.02	<0.02
33-A	<0.02	<0.02
33-B	<0.02	<0.02
34-A	<0.02	<0.02
34-B	<0.02	<0.02
35-A	<0.02	<0.02
35-B	<0.02	<0.02

2.4.7 Macrophytes

2.4.7.1 Objectives

No change in objectives has occurred since Progress Report 3. See section 2.4.7.1 of Progress Reprot 3 for specific objectives.

2.4.7.2 Methods

No change in methods has occurred since Progress Report 2. See section 2.4.7.2 of Progress Report 2 for specific methods.

2.4.7.3 Results

Aquatic macrophytes were observed at Stations 1, 5, 8, 14, 19, and 20 during May - June. Evaluation of the relative abundance of aquatic macrophytes followed the system of Jessen and Lound (1962). At Station 1, the density of water cress (Rorippa nasturtium - aquaticum) was sparse. At Stations 5, the density of water cress was sparse, whereas the densities of Ranunculus cymbalaria were moderate. At Station 8, the density of water cress was scattered (it occurred along a strip 12 - 18 inches wide extending approximately 19 feet along the west bank of the stream). At Station 14, Zannichelia vulgaris was present in moderate abundance. At Station 19 (a pond), Chara kieneri was dense. At Station 20, Zannichelia palustris L. was present in scattered abundance.

2.4.8 Fish

2.4.8.1 Objectives

The objectives of fish studies remain unchanged from Progress Report 2.

2.4.8.2 Methods

The high flow and swift current encountered in the White River during May - June 1975 sampling necessitated some modification in fish sampling procedures. Fishing methods used during May - June sampling are outlined below.

Station 23

Electroshocking runs were made downstream through a 100 foot (30.5m) section which was not blocked off. Fish were collected with three dip nets. This procedure was then repeated for the second replicate.

Station 25 and 31

Electroshocking from a boat was attempted at these mid-stream stations. These efforts proved unsuccessful as no fish were captured with this method.

Station 27 and 28

Electroshocking runs were made upstream through a 100 foot (30.5m) using three dip nets to collect fish. (The section could not be blocked off prior to shocking.) The procedure was repeated for the second replicate.

Station 29

Electroshocking runs were made downstream through a 100 foot (30.5m) section using three dip nets to collect fish; also electroshocked upstream along a 40 foot channel adjacent to the stream (neither of these sections could be blocked off). The procedure was then repeated for the second replicate.

Stations 30 and 32

Electroshocking runs were made downstream through a 100 foot (30.5m) section using four dip nets to collect fish. The procedure was then repeated for the second replicate.

Stations 33 and 34

Electroshocking runs were made downstream through a 100 foot (30.5m) section using three dip nets to collect fish. The procedure was then repeated for the second replicate.

Station 35

Electroshocking runs were made downstream through a 100 (30.5m) section from a boat using the probes and two dip nets for the boat. This procedure was then repeated for the second replicate.

2.4.8.3 Results

Fish data from the May - June sampling period are presented in Appendices C-17-1 through C-17-7. During the May - June sampling approximately 463 fish representing eight species were captured in the White River and lower Yellow Creek. The catch was dominated by rough and forage fishes, with only a single game fish (cutthroat trout) observed. The most abundant fish were dace, flannelmouth sucker, fathead minnow, and bluehead sucker. The high volume and velocity of flow of the White River hampered fishing efforts during this sampling period.

2.4.8 Fish Data

APPENDIX C-17-1

FISH DATA, WHITE RIVER AND YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-17-1

FISH DATA, WHITE RIVER AND YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Carp	445	1,311	1.48
		Roundtail chub	273	169	0.83
		"	194	68.8	0.94
		"	178	50.6	0.89
		"	197	68.3	0.89
		"	199	71.8	0.91
		"	191	66.7	0.95
		"	203	65.6	0.78
		Flannelmouth sucker	170	43.9	0.89
		"	126	17	0.84
		"	120	16	0.92
		"	74	4	0.98
		"	71	4	1.11
		"	75	5	1.18
		"	72	4	1.07
		"	81	5	0.94
		"	73	4	1.02
		"	80	5	0.97
		"	71	4	1.11
		"	68	3	0.95
		"	76	4	0.91
		"	69	3	0.91
		"	63	2	0.79
		"	69	3	0.91
		"	69	3	0.91
		"	68	3	0.95
		"	66	3	1.04
		"	59	2	0.97
		"	64	2	0.76
		"	63	2	0.79
		"	52	1	0.71
		"	69	3	0.91
		"	55	1	0.60
		"	49	1	0.84
		"	56	2	1.13
		"	64	3	1.14
		"	67	3	0.99
		"	58	2	1.02
		"	56	2	1.13

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Flannelmouth sucker	46	1	1.02
		"	49	1	0.84
		"	64	3	1.14
		"	54	1	0.63
		"	68	3	0.95
		"	55	2	1.20
		"	66	3	1.04
		"	58	2	1.02
		"	64	2	0.76
		"	63	2	0.79
		"	60	2	0.92
		"	62	2	0.83
		"	60	2	0.92
		"	59	2	0.97
		"	65	3	1.19
		"	55	2	1.20
		"	55	2	1.20
		"	54	1	0.63
		"	59	2	0.97
		"	57	2	1.07
		"	59	2	0.97
		"	56	2	1.13
		"	55	2	1.20
		"	46	1	1.02
		"	55	1	0.60
		"	49	1	0.84
		"	56	2	1.13
		"	52	1	0.71
		"	51	1	0.75
		"	63	2	0.79
		"	47	1	0.96
		"	57	2	1.07
		"	55	2	1.20
		"	54	1	0.63
		"	49	1	0.84
		Bluehead sucker	100	11	1.1
		"	53		
		"	54		
		"	52		
		"	48		
		"	60		
		"	52		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Bluehead sucker	59		
		"	49		
		"	63		
		"	49		
		"	44		
		"	47		
		"	48		
		"	55		
		"	53		
		"	50		
		"	39		
		"	55		
				27.0 = Total for 18 Bluehead suckers	
		Fathead minnow	55		
		"	55		
		"	46		
		"	47		
		"	59		
		"	47		
		"	38		
		"	37		
		"	39		
		"	58		
		"	42		
		"	39		
		"	42		
		"	49		
		"	34		
		"	40		
		"	40		
		"	42		
		"	42		
		"	54		
		"	36		
		"	52		
		"	53		
		"	39		
		"	42		
		"	50		
		"	39		
		"	56		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Fathead minnow	55		
		"	42		
		"	44		
		"	50		
		"	56		
		"	55		
			49		
				50.6 = Total for 35 Fathead minnows	
6-27-75	22-1	Rhinichthys spp.	44		
		"	49		
		"	56		
		"	49		
		"	44		
		"	47		
		"	43		
		"	42		
		"	45		
		"	49		
		"	54		
		"	58		
		"	54		
		"	48		
		"	46		
		"	46		
		"	56		
		"	53		
		"	49		
		"	56		
		"	45		
		"	44		
		"	35		
		"	55		
		"	43		
		"	45		
		"	43		
		"	50		
		"	45		
		"	55		
		"	46		
		"	56		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{TL}
6-27-75	22-1	Rhinichthys spp.	50		
		"	49		
		"	45		
		"	52		
		"	44		
		"	46		
		"	52		
		"	45		
		"	60		
		"	43		
		"	40		
		"	47		
		"	52		
		"	35		
		"	50		
		"	44		
		"	44		
		"	43		
		"	38		
		"	50		
		"	53		
		"	50		
		"	44		
		"	49		
		"	54		
		"	47		
		"	51		
		"	48		
		"	45		
		"	47		
		"	52		
		"	33		
		"	40		
		"	50		
		"	53		
		"	44		
		"	57		
		"	47		
		"	53		
		"	47		
		"	48		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Rhinichthys spp.	53		
		"	37		
		"	48		
		"	47		
		"	46		
		"	47		
		"	49		
		"	32		
		"	48		
		"	50		
		"	45		
		"	46		
		"	42		
		"	50		
		"	47		
		"	56		
		"	45		
		"	49		
		"	46		
		"	48		
		"	39		
		"	51		
		"	40		
		"	44		
		"	47		
		"	39		
		"	42		
		"	33		
		"	45		
		"	46		
		"	54		
		"	45		
		"	51		
		"	49		
		"	42		
		"	42		
		"	53		
		"	37		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-1	Rhinichthys spp.	47		
		"	50		
		"	46		
		"	42		
				118.5 = Total for 118 Rhinichthys spp.	
		Rhinichthys sp.	72	3.9	
6-27-75	22-2	Fathead minnow	65	4.0	1.45
		Rhinichthys spp.	58	1.9	
		"	54	1.3	
		"	48	1.0	
		"	45	0.8	
		"	46	0.9	
6-27-75	22-Qual	Flannelmouth sucker	71	3	0.83
		"	63	2	0.79
		"	47		
		"	52		
		"	46		
				3 = Total for 3 Flannelmouth sucker suckers	
		Bluehead sucker	52	2	1.42
		Fathead minnow	47		
		"	35		
		"	40		
		"	45		
		"	47		
		"	49		
		"	34		
				7 = Total for 7 Fathead minnows	
		Rhinichthys spp.	50		
		"	44		
		"	47		
		"	49		
		"	48		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-Qual	Rhinichthys spp.	44		
		"	44		
		"	48		
		"	51		
		"	56		
		"	50		
		"	54		
		"	52		
		"	53		
		"	44		
		"	49		
		"	44		
		"	45		
		"	43		
		"	52		
		"	53		
		"	48		
		"	51		
		"	50		
		"	56		
		"	46		
		"	51		
		"	51		
		"	40		
		"	40		
		"	43		
		"	50		
		"	51		
		"	42		
		"	46		
		"	44		
		"	39		
		"	42		
		"	35		
		"	44		
		"	39		
		"	46		
		"	45		
		"	59		
		"	48		

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	22-Qual	Rhinichthys spp.	42		
		"	46		
		"	44		
		"	39		
		"	42		
		"	35		
		"	44		
		"	39		
		"	46		
		"	45		
		"	59		
		"	48		
		"	47		
		"	40		
		"	47	45.2 = Total for 49 Rhinichthys spp.	
6-27-75	23-1	Flannelmouth sucker	264	140	0.76
		"	213	78	0.80
		"	170	42	0.85
		Bluehead sucker	184	47	0.75
		Mottled sculpin	90	10	1.37
		"	92	11	1.41
		"	83	8	1.39
		Rhinichthys spp.	52	2	
6-27-75	23-2	Mottled sculpin	66	4.2	1.46
6-24-75	24-1	Flannelmouth sucker	425	605	0.78
		"	227	100	0.85
		"	171	43	0.85
		"	154	35	0.95
		"	135	22	0.89
		Bluehead sucker	218	80	0.77
		Rhinichthys spp.	49	1.2	
		"	46	0.9	
6-24-75	24-2	Flannelmouth sucker	457	725	0.75
		"	226	100	0.86
		Bluehead sucker	162	35	0.82

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-27-75	24-2	Bluehead sucker	192	55	0.77
		"	163	38	0.87
6-24-75	25-1	No Fish			
6-24-75	25-2	No Fish			
6-24-75	26-1	Flannelmouth sucker	184	65	1.04
6-24-75	26-2	Flannelmouth sucker	170	36	0.73
		Rhinichthys spp.	65	3.5	
		"	54	1.4	
		"	48	1.1	
6-26-75	27-1	Rhinichthys spp.			
6-26-75	27-2	Flannelmouth sucker			
		Roundtail chub			
		Rhinichthys spp.			
6-26-75	28-1	Flannelmouth sucker	472	831	0.79
		"	422	611	0.81
		"	370	458	0.90
		"	385	481	0.84
		"	434	703	0.85
		"	388	485	0.83
		"	354	360	0.81
		"	395	586	0.95
		"	116	14.1	0.90
		Cutthrout trout	337	452	1.18
6-26-75	28-1	Roundtail chub	152	31.5	0.89
		Rhinichthys spp.	72	3.8	
		"	51	1.2	
		"	55	1.4	
6-26-75	28-2	Flannelmouth sucker	411	770	1.1
		"	267	154	0.80
6-26-75	29-1	Flannelmouth sucker	224	85	0.75
		"	162	32	0.75
		"	176	42	0.77
		"	217	83	0.81
		"	239	110	0.80

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-26-75	29-1	Flannelmouth sucker	214	73	0.74
		"	156	28	0.73
		"	393	601	0.99
		"	364	407	0.84
		"	169	48.1	0.99
		"	148	32.1	0.99
		"	124	17.1	0.89
		Bluehead sucker	226	140	1.21
		"	409	628	0.91
		"	145	26.7	0.87
		"	146	28.0	0.89
		"	141	25.6	0.91
		"	111	11.7	0.85
		"	94	8.4	1.01
		Mottled sculpin	101	14	1.35
		"	86	9	1.41
		"	77	7	1.53
		"	70	5	1.45
		"	60	3	1.38
		Rhinichthys spp.	69	3	
		"	50		
		"	50		
		"	47		
		"	46		
		"	46		
		"	44		
		"	46		
		"	54		
		"	43		
		"	47		
		"	49		
				12 = Total for 11	
				11 Rhinichthys spp.	
6-26-75	29-2	Flannelmouth sucker	169	41	
		Bluehead sucker	104	10.9	
		Mottled sculpin	78	6.3	
		Rhinichthys spp.	95	11.2	
		"	81	5.4	
		"	63	3.4	
		"	54	1.6	

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_T L
6-26-75	29-2	Rhinichthys spp.	51		
		"	52		
		"	49	3.6 = Total for 3 Rhinichthys spp.	
6-23-75	30-1	Flannelmouth sucker	429	669	
		"	423	769	
		"	390	510	
		"	82	6	
		"	74	4	
		"	67		
		"	61		
		"	59		
		"	50		
		"	52		
		"	51		
		"	46		
		"	51		
		"	50		
		"	54		
		"	45		
		"	44		
		"	48	18.2 = Total for last 13 Flannelmouth suckers	
6-23-75	30-2	Rhinichthys spp.	98	11.2	
6-23-75	31-1	No Fish Captured			
6-23-75	31-2	No Fish Captured			
6-23-75	32-1	Flannelmouth sucker	324	304	0.89
		"	229	97	0.80
		"	198	60	0.77

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-23-75	32-1	Flannelmouth sucker	169	29	0.60
		Bluehead sucker	160	20	0.48
		Roundtail chub	231	86	0.68
6-23-75	32-2	Flannelmouth sucker	203	62	0.74
		"	210	63	0.68
6-25-75	33-1	Flannelmouth sucker	383	497	0.88
		"	133	21	0.89
6-25-75	33-2	Rhinichthys spp.	62	2.3	
		"	54	1.6	
			49	1.3	
6-25-75	34-1	Flannelmouth sucker	220	88	0.82
		"	242	121	0.85
		"	216	86	0.85
		"	175	50	0.93
		Mottled sculpin	88	11	1.61
6-25-75	34-1	Rhinichthys spp.	86	8	
		"	71	4	
		"	42	1	
		"	50		
		"	57		
		"	48		
				4.4 = Total for last 3 Rhinichthys spp.	

APPENDIX C-17-1 (Continued)

Date	Station Replicate	Species	Length (mm)	Weight (gm)	K_{T_L}
6-25-75	34-1	Rhinichthys spp.	47 42 44 41 47	4.5 = Total for 5 Rhinichthys spp.	
6-25-75	34-2	Rhinichthys spp.	75	5.3	
6-25-75	35-1	Flannelmouth sucker	206	65	0.74
		"	200	58	0.72
		"	183	50	0.81
		"	109	11	0.84
		Bluehead sucker	308	236	0.80
6-25-75	35-2	Flannelmouth sucker	175	49	0.91

APPENDIX C-17 - 2

LIST OF FISH SPECIES AND NUMBERS CAPTURED
WHITE RIVER AND LOWER YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

APPENDIX C-17-2

LIST OF FISH SPECIES AND NUMBERS CAPTURED
WHITE RIVER AND LOWER YELLOW CREEK
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Common Name	Scientific Name	Number Captured
Cutthroat trout	Salmo clarki	1
Fathead minnow	Pimephales promelas	43
Dace	Rhinichthys spp.	234
Bluehead sucker	Catostomus discobolus	36
Flannelmouth sucker	Catostomus latipinnis	127
Mottled sculpin	Cottus bairdi	11
Roundtail chub	Gila robusta	10
Carp	Cyprinus carpio	1

APPENDIX C-17-3

SUMMARY OF STOMACH CONTENT ANALYSIS FOR NINE MOTTLED SCUPIN
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-17-3

SUMMARY OF STOMACH CONTENT ANALYSIS FOR NINE MOTTLED SCUPIN
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Food Item	% Frequency of Occurrence[1]	& of Total Food Item[2]
Baetidae	56	24
Ephemerella	78	65
Hydropsyche	33	10
Tricorythodes	11	2

APPENDIX C-17-4

SUMMARY OF STOMACH CONTENT ANALYSES FOR 64 FLANNELMOUTH SUCKERS RBUSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-17-4

SUMMARY OF STOMACH CONTENT ANALYSES FOR 64 FLANNELMOUTH SUCKERS RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Food Item	% Frequency of Occurrence[1]	% of Total Food Item[2]
Baetidae	8	2
Baetis	16	9
Ceratopogonidae	6	1
Chironomidae	53	52
Diptera adult	3	1
Diptera pupa	2	1
Ephemerella	23	14
Ephemeroptera adult	2	1
Hydropsyche	16	8
Hydropsychidae	2	<1
Hydroptila	3	<1
Isoperla	6	1
Nematoda	2	<1
Pyralidae	2	<1
Simulidae	16	10
Terrestrial ant	3	<1
Terrestrial insect	2	<1
Terrestrial seed	14	2
Internal Parasites	42	--
Sand	9	--

APPENDIX C-17-5

SUMMARY OF STOMACH CONTENT ANALYSIS FOR 11 BLUEHEAD SUCKERS RBOSP AQUATIC BASELINE STUDIES MAY - JUNE 1975

APPENDIX C-17-5

SUMMARY OF STOMACH CONTENT ANALYSIS FOR 11 BLUEHEAD SUCKERS RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Food Item	% Frequency of Occurrence[1]	% of Total Food Item[2]
Baetidae	27	8
Chironomidae	27	8
Ephemerella	9	2
Hydroptila	9	2
Pyralidae	9	2
Simulidae	9	2
Terrestrial seed	9	2
Internal Parasites	55	--
Sand	36	--

[1] % Frequency of Occurrence = $\frac{\text{\# stomach containing food items}}{\text{total \# stomachs examined}}$

[2] % of Total Food Items = $\frac{\text{total \# of a food taxa in all stomachs}}{\text{total \# of all food items}}$

APPENDIX C-17-6

SUMMARY OF STOMACH CONTENT ANALYSIS FOR EIGHT ROUNDTAIL CHUBS
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-17-6

SUMMARY OF STOMACH CONTENT ANALYSIS FOR EIGHT ROUNDTAIL CHUBS
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975

Food Item	% Frequency of Occurrency[1]	% of Total Food Items[2]
Acari	13	7
Chironomidae	38	21
Ephemerella	13	29
Fish (Minnow)	13	7
Hydroptilidae case	13	7
Spirogyra	38	--
Internal parasites	25	--

APPENDIX C-17-7

RESULTS OF FOOD HABIT ANALYSES FOR INDIVIDUAL FISH
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-17-7

RESULTS OF FOOD HABIT ANALYSES FOR INDIVIDUAL FISH
RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975[1]

Station 22 Date 6-26-75

Species	Length (mm)	Weight (gm)	#	Food Items
Flannelmouth sucker	74.0	4.0	19	Chironomidae
				Insect parts
Flannelmouth sucker	71.0	4.0	20	Chironomidae
			10	Simulidae larva
Flannelmouth sucker	75.0	5.0	2	Chironomidae
Flannelmouth sucker	72.0	4.0	20	Chironomidae
			10	Simulidae larva
Flannelmouth sucker	81.0	5.0	8	Chironomidae
			2	Simulidae larva
Flannelmouth sucker	73.0	4.0	14	Chironomidae
			1	Simulidae larva
Flannelmouth sucker	71.0	4.0	18	Chironomidae
			11	Simulidae larva
Flannelmouth sucker	76.0	4.0	20	Chironomidae
Flannelmouth sucker	68.0	3.0	10	Chironomidae
			8	Simulidae larva
Flannelmouth sucker	69.0	3.0	30	Chironomidae
Flannelmouth sucker	120.0	16.0	1	Diptera pupa
Flannelmouth sucker	170.0	43.9	2	Baetis
			15	Chironomidae
Roundtail chub	178.0	50.6	1	Chironomidae
				Insect parts
				Spirogyra

[1] No fish were taken at Stations 25 and 31, no stomachs were taken at Stations 33 and 35; and the five specimens taken at Station 27 were accidentally destroyed.

U = Unidentifiable

Station 22 (Continued) Date 6-26-75

Species	Length (mm)	Weight (gm)	#	Food Items
Roundtail chub	191.0	66.7	1	Chironomidae
			4	Ephemerella
			1	Fish (minnow)
Roundtail chub	199.0	71.8	3	Insect parts
Roundtail chub	203.0	65.6	1	Acari
				Spirogyra
Roundtail chub	197.0	68.3	1	Chironomidae
			1	Hydroptilidae case
				Spirogyra
Roundtail chub	273.0	169.9		U
Bluehead sucker	100.0	11.0		U
Flannelmouth sucker	126.0	17.0		U
Flannelmouth sucker	80.0	5.0		None
	Station 23		Date 6-27-75	
Flannelmouth sucker	213.0	78.0	1	Ephemerella
Flannelmouth sucker	170.0	42.0		U
Flannelmouth sucker	264.0	140.0		U
Bluehead sucker	184.0	47.0		U
				Sand
	Station 24		Date 6-24-75	
Flannelmouth sucker	227.0	100.0	10	Baetis
Flannelmouth sucker	425.0	605.0	16	Baetis
			4	Chironomidae
			20	Ephemerella
			5	Hydropsychidae
			2	Hydroptila
			1	Isoperla

Station 24 (Continued) Date 6-24-75

Species	Length (mm)	Weight (gm)	#	Food Items
Flannelmouth sucker	457.0	725.0	9	Ephemerella
			1	Hydropsyche
			1	Simulidae
Flannelmouth sucker	135.0	22.0	1	Hydropsyche
			1	Isoperla
Flannelmouth sucker	226.0	100.0	1	Ephemerella
Flannelmouth sucker	154.0	35.0	1	Seed (Terrestrial origin)
Flannelmouth sucker	171.0	43.0	1	Baetis
			1	Ephemerella
Bluehead sucker	192.0	55.0	16	Chironomidae
			1	Pyralidae
			5	Simulidae
Bluehead sucker	163.0	38.0	2	Baetis
			10	Ephemerella
			1	Hydroptila
Bluehead sucker	162.0	35.0	2	Seeds (Terrestrial origin)
Bluehead sucker	218.0	80.0	1	U
	Station 26		Date 6-26-75	
Flannelmouth sucker	224.0	85.0	1	Baetidae
			3	Ephemerella
			1	Seed (Terrestrial origin)
Flannelmouth sucker	170.0	36.0	1	Hydropsyche
Flannelmouth sucker	184.0	65.0	1	Seed (Terrestrial origin)

Station 28 Date 6-26-75

Species	Length (mm)	Weight (gm)	#	Food Items
Flannelmouth sucker	422.0	611.0	1	Hydropsychidae
Flannelmouth sucker	385.0	481.0	2	Baetidae
				Vegetation (Terrestrial origin)
Flannelmouth sucker	395.0	586.0	3	Baetidae
			1	Chironomidae
			1	Ephemerella
				Seed (Terrestrial origin)
Flannelmouth sucker	472.0	831.0	2	Baetis
			1	Ceratopogonidae
			2	Chironomidae
			2	Ephemerella
			3	Hydropsyche
Flannelmouth sucker	267.0	154.0	12	Baetis
			1	Chironomidae
			4	Ephemerella
			2	Hydropsyche
			1	Isoperla
			1	Terrestrial insect
			2	Seed (Terrestrial origin)
Flannelmouth sucker	116.0	14.1	1	Chironomidae
Flannelmouth sucker	388.0	485.0	1	Baetis
			1	Chironomidae
Flannelmouth sucker	434.0	703.0		U
Flannelmouth sucker	411.0	770.0		U
				Sand
Flannelmouth sucker	370.0	458.0		U
				Sand
Flannelmouth sucker	354.0	360.0		U
				Sand
Roundtail chub	152.0	31.5		U

Station 29 Date 2-26-75

Species	Length (mm)	Weight (gm)	#	Food Items
Flannelmouth sucker	156.0	28.0	1	Ceratopogonidae
			1	Chironomidae
			1	Ephemerella
			1	Hydropsyche
			1	Ant
			1	Seed (Terrestrial origin)
Flannelmouth sucker	169.0	41.0	1	Ephemerella
			1	Seed (Terrestrial origin)
Flannelmouth sucker	63.0	2.0	15	Chironomidae
Flannelmouth sucker	69.0	3.0	14	Chironomidae
Flannelmouth sucker	69.0	3.0	15	Chironomidae
			1	Nematoda
Flannelmouth sucker	68.0	3.0	3	Chironomidae
Flannelmouth sucker	66.0	3.0	3	Chironomidae
			4	Simulidae
Flannelmouth sucker	148.0	32.1	1	Baetidae
Flannelmouth sucker	124.0	17.1	1	Chironomidae
			1	Ant
Flannelmouth sucker	162.0	32.0	3	Ceratopogonidae
			1	Chironomidae
			1	Seed & grass
Flannelmouth sucker	214.0	73.0	2	Baetidae
			1	Chironomidae
			1	Hydropsyche
Flannelmouth sucker	217.0	83.0	2	Baetis
			1	Chironomidae
			2	Ephemerella
Flannelmouth sucker	239.0	110.0	1	Chironomidae
				Insect parts

Station 29 (Continued) Date 6-26-75

Species	Length (mm)	Weight (gm)	Food Items #	
Flannelmouth sucker	176.0	42.0		U
Flannelmouth sucker	373.0	601.0		U Sand
Flannelmouth sucker	104.0	10.1		Insect parts
Flannelmouth sucker	364.0	407.0		Vegetation (Terrestrial origin) U
Flannelmouth sucker	169.0	48.1		Empty
Bluehead sucker	409.0	628.0	1	Baetidae
Bluehead sucker	266.0	140.0		U
Bluehead sucker	145.0	26.7		Empty
Mottled sculpin	83.0	8.0	2 2	Baetidae Ephemerella
Mottled Sculpin	92.0	11.0	4 2	Baetidae Hydropsyche
Mottled sculpin	90.0	10.0	2 3	Baetidae Ephemerella
Mottled sculpin	60.0	3.0	2	Ephemerella
Mottled sculpin	70.0	5.0	1	Ephemerella
Mottled sculpin	86.0	9.0	13	Ephemerella
Mottled sculpin	101.0	14.0	3 3 1	Baetidae Ephemerella Hydropsyche
Mottled sculpin	77.0	7.0		U

Station 30 Date 6-23-75

Species	Length (mm)	Weight (gm)	#	Food Items
Flannelmouth sucker	390.0	510.0	1	Chironomidae
			3	Diptera adult
			33	Ephemerella
			27	Hydropsyche
			4	Isoperla
			5	Simulidae
Flannelmouth sucker	429.0	669.0	1	Diptera adult
			1	Ephemerella
			1	Ephemeroptera
			1	Hydroptila
			1	Pyralidae
Flannelmouth sucker	423.0	769.0	1	Ephemerella
			1	Seed (Terrestrial origin)
Flannelmouth sucker	203.0	62.0	1	Chironomidae
Flannelmouth sucker	229.0	97.0	1	Baetis
			1	Ceratopogonidae
			9	Chironomidae
			1	Hydropsyche
Flannelmouth sucker	198.0	60.0	1	Chironomidae
Flannelmouth sucker	324.0	304.0	1	Chironomidae
				Sand
Flannelmouth sucker	169.0	29.0	3	Baetis
			43	Chironomidae
Bluehead sucker	160.0	20.0	8	Chironomidae
				Vegetative Material (Terrestrial origin)
				Sand
Bluehead sucker	210.0	63.0	1	Baetis
			2	Chironomidae
Roundtail chub	231.0	86.0		U

APPENDIX C-17-7 (Continued

Station 34 Date 6-25-75

Species	Length (mm)	Weight (gm)	Food Items #	
Mottled sculpin	88.0	11.0	1	Baetidae
			9	Ephemerella
			2	Hydropsyche
			1	Tricorythodes

2.4.9 Springs and Seepages

2.4.9.1 Objectives

No change in objectives has occurred since Progress Report 3. See section 2.4.9 of Progress Report 3 for specific objectives.

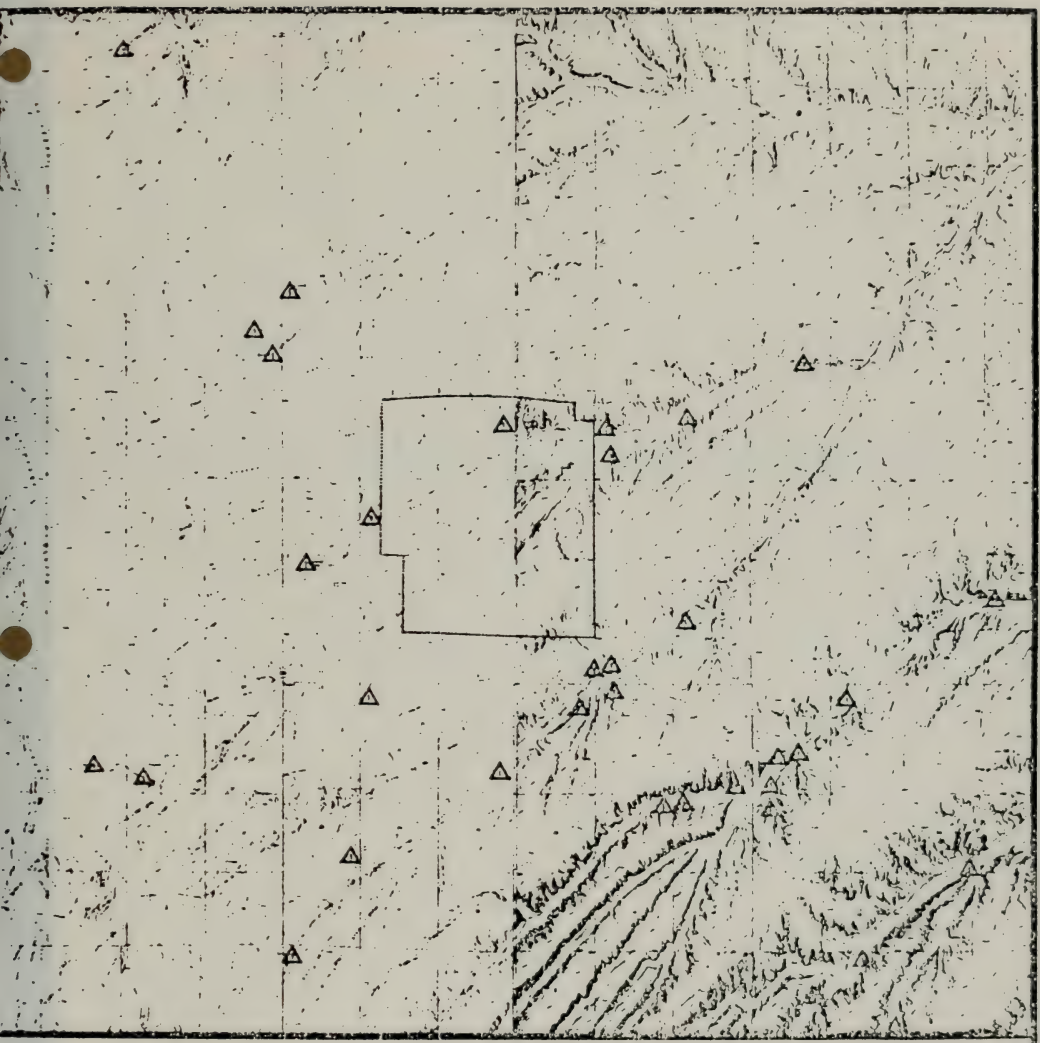
2.4.9.2 Methods

No change in methods has occurred since Progress Report 3. See section 2.4.9 of Progress Report 3 for specific methods.

2.4.9.3 Results

Locations of springs and seepages on or near Tract C-a are shown on Figure 2.4-2. Additional springs and seepages which are not identified on Figure 2.4-2 include:

- a series of seepages located from 25 to 200 feet above aquatic sampling Station 4 in Water Gulch
- Maverick Springs at aquatic sampling Station 3 in Corral Gulch
- a spring located approximately one mile above the confluence of Water and Corral Gulches
- a spring located approximately 100 feet above aquatic sampling Station 9 in Coral Gulch
- a spring located approximately one mile above the confluence of Water and Corral Gulches
- a spring at aquatic sampling Station 2 in Spruce Gulch
- a spring at aquatic sampling Station 1 in Cross Gulch approximately two miles above the confluence with Spruce Gulch
- a spring located approximately 2600 feet above aquatic sampling Station 1
- a spring located approximately 50 feet above aquatic sampling Station 8 in Box Elder Gulch
- a spring located immediately above aquatic sampling Station 8 in Box Elder Gulch
- a spring located approximately 50 feet above aquatic sampling Station 2 in Spruch Gulch
- a spring located approximately 1300 feet west of aquatic sampling Station 13 on Corral Gulch
- a seepage in Stake Springs Draw approximately 200 feet above its confluence with Corral Gulch



ENVIRONMENTAL
STUDIES FOR THE
RIO BLANCO OIL SHALE PROJECT

TRACT C-a

SPRING & SEEPAGE LOCATIONS

△ springs and seepages as of 5/75

Figure 2.4-2

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2.4.10 Hydrology

2.4.10.1 Objectives

The objective of this segment of the aquatic program is to measure the approximate stream velocites at each site at the time of sample collection to assist in characterizing the existing aquatic habitat.

2.4.10.2 Methods

Stream velocity is measured at each sampling site with Gurley flowmeters or an equivalent device.

2.4.10.3 Results

The approximate stream velocities during the May - June and July - August sampling periods are presented in Appendices C-18-1 and C-18-2.

2.4.10 - Hydrology Data

APPENDIX C-18-1

STREAM FLOW
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-18-1

STREAM FLOW, RBOSP AQUATIC BASELINE STUDIES, MAY - JUNE 1975
(Results are expressed in feet per second and, where appropriate, are given for bank side and point of maximum flow.)[1]

Station	Flow (ft/sec) s m
1	1.5
2	2.5
3	0.9
4	1.4
5	1.4
6	3.5;2.0
7	2.5
8	3.2;1.8
9	1.7
13	1.7
14	0.0
19	1.8
20	1.4
21	2.3
22	0.0
23	2.1;0.2
24	4.4;3.0
25	7.5
26	4.6;3.0
27	1.6;1.2
28	3.3;0.8
29	5.8;3.1
30	5.3
31	6.7
32	3.9;1.5
33	3.5
34	3.5
35	4.0;3.1

[1]Stations 10-12 and 15-18 were dry at the time of sampling.

APPENDIX C-18-2

STREAM FLOW
RBOSP AQUATIC BASELINE STUDIES
JULY - AUGUST 1975

APPENDIX C-18-2

STREAM FLOW, RBOSP AQUATIC BASELINE STUDIES, JULY - AUGUST 1975
(Results are expressed in feet per second and, where appropriate, are given for bank side and point of maximum flow.)[1]

Station	Flow (ft/sec) s m
1	0.4
2	1.3
3	1.3
4	1.5
5	0.4
7	1.5
8	1.7;2.0
9	2.1
13	2.0
14	0.0
15	0.8
17	0.4
18	0.8
19	1.8
20	1.4
21	0.8
22	0.7
23	1.0;2.9
24	2.4;2.2
25	2.8;2.9
26	1.9;2.9
27	0.4;1.2
28	1.0;1.3
29	2.1;3.1
30	2.7;3.1
31	2.4;3.1
32	1.7;2.9
33	1.0;2.8
34	1.0;1.7
35	1.7;2.9

[1] Stations 6, 10 - 12, and 16 were dry at the time of sampling

2.4.11 Miscellaneous Studies

2.4.11.1 Objectives

No change in objectives has occurred since Progress Report 3. See section 2.4.11 of Progress Report 3 for specific objectives.

2.4.11.2 Methods

No change in methods has occurred since Progress Report 3. See section 2.4.11 of Progress Report 3 for parameters included in these studies. The frequency of collection of the various parameters included in these investigations and the list of parameters are presented in Table 2.4-3.

2.4.11.3 Results

Data from the April and May - June sampling periods are included in Appendices C-19-1, C-19-2, and C-20-1.

Table 2.4-3. List of Parameters and Sampling Frequency for Water Quality Investigations.

Semi-Monthly	Semi-Monthly[1]
Element or Compound	Element or Compound
Barium	Arsenic
Boron	Cadmium
Calcium	Lead
Chromium	Manganese
Copper	Mercury
Fluoride	Phosphorus
Iron	Cyanide
Lithium	Sulfide
Magnesium	
Potassium	
Selenium	
Silicon	
Sodium	
Sulfate	
Zinc	
Ammonia	
Bicarbonate	
Carbonate	
Chloride	
Color	
Dissolved solids	
Kjeldahl nitrogen	
Nitrate	
Nitrite	
Odor	
Oil and Grease	
Turbidity	

[1]Subject to review

Table 2.4-3 (Continued)

Quarterly		
Organics	Radioactivity	Element or Compound
Total organic C • if < 10mg/l no additional analysis	Gross Alpha > 4 picocuries/l analyze for RA 226	Complete Element Scan
• if > 10mg/l then, Dissolved organic C Suspended organic C Phenols Sulfate Nitrogen	Gross Beta • if > 100 picocuries/l analyze for Th 230 and Natural Uranium	
Chemical oxygen demand		
Fecal coliform		
Pesticides		

2.4.11 - Miscellaneous Studies Data

2.4.11 - Miscellaneous Studies

APPENDIX C-19-1

WATER QUALITY DATA. SPECTROGRAPHIC ELEMENT SCAN
RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

APPENDIX C-19-1

WATER QUALITY DATA. SPECTROGRAPHIC ELEMENT SCAN RBOSP AQUATIC BASELINE STUDIES, APRIL 1975 (Data are expressed in µg/l and are based upon dissolved solids.)

Parameter	Station / Replicate			
	25		34	
	A	B	A	B
Aluminum (Al)	0.01	0.01	0.02	0.02
Antimony (Sb)	ND	ND	ND	ND
Arsenic (As)	ND	ND	ND	ND
Barium (Ba)	0.017	0.017	0.017	0.017
Beryllium (Be)	ND	ND	ND	ND
Bismuth (Bi)	ND	ND	ND	ND
Boron (B)	0.02	0.02	0.02	0.02
Cadmium (Cd)	ND	ND	ND	ND
Calcium (Ca)	55.0	53.6	53	54
Chromium (Cr)	ND	ND	ND	ND
Cobolt (Co)	ND	ND	ND	ND
Copper (Cu)	0.003	0.003	0.003	0.003
Germanium (Ge)	ND	ND	ND	ND
Iron (Fe)	0.008	0.013	0.013	0.013
Lead (Pb)	ND	ND	ND	ND
Magnesium (Mg)	23	22.6	22.6	22.7
Manganese (Mn)	ND	ND	ND	ND
Molybdenum (Mo)	ND	ND	ND	ND
Nickel (Ni)	ND	ND	ND	ND
Potassium (K)	6.4	6.2	6.4	6.4
Silica (Si)	0.05	0.09	0.09	0.09
Sodium (Na)	192	186	185	187
Strontium (Sr)	2.4	2.4	2.4	3.2
Tellurium (Te)	ND	ND	ND	ND
Tin (Sn)	ND	ND	ND	ND
Titanium (Ti)	ND	ND	ND	ND
Vanadium (V)	ND	ND	ND	ND
Wolfram (W)	ND	ND	ND	ND
Zirconium (Zr)	ND	ND	ND	ND

ND = Not Detected

APPENDIX C-19-2

WATER QUALITY DATA
RBOSP AQUATIC BASELINE STUDIES
APRIL 1975

APPENDIX C-19-2

WATER QUALITY DATA. RBOSP AQUATIC BASELINE STUDIES
APRIL 1975. (Data are expressed in mg/l.)

PARAMETER	STATION			
	REPLICATE			
	25		34	
	A	B	A	B
Lindane	<0.0001	<0.0001	<0.0001	<0.0001
Malathion	<0.0005	<0.0005	<0.0005	<0.0005
Parathion	<0.0001	<0.0001	<0.0001	<0.0001
Toxaphene	<0.002	<0.002	<0.002	<0.002

APPENDIX C-20-1

WATER QUALITY DATA
RBOSP AQUATIC BASELINE STUDIES
MAY - JUNE 1975

APPENDIX C-20-1

WATER QUALITY DATA. RBOSP AQUATIC BASELINE STUDIES
MAY-JUNE 1975. (Data are expressed in mg/l unless otherwise noted.)

PARAMETER	STATION 25 A	STATION 25 B	STATION 34 A	STATION 34 B
	REPLICATE		REPLICATE	
Arsenic (As), Diss	< 0.03	< 0.03	< 0.03	< 0.03
Barium (Ba), Diss	< 0.1	< 0.1	< 0.1	< 0.1
Boron (B) Diss	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium (Cd), Diss	< 0.01	< 0.01	< 0.01	< 0.01
Chromium (Cr) Total Diss	< 0.03	< 0.03	< 0.03	< 0.03
Copper (Cu), Diss	< 0.02	< 0.02	< 0.02	< 0.02
Cyanide (CN) Total	< 0.001	< 0.001	< 0.001	< 0.001
Fluoride (F), Diss	0.07	0.07	0.06	0.06
Iron (Fe), Total Diss	0.03	0.06	0.05	0.05
Lead (Pb) Diss	< 0.05	< 0.05	< 0.05	< 0.05
Lithium (Li) Diss	< 0.02	< 0.02	< 0.02	< 0.02
Manganese (Mn), Diss	< 0.02	< 0.02	< 0.02	< 0.02
Mercury (Hg), Diss (µg/l)	0.8	0.6	0.8	0.6
Phosphorus (P), Total Diss	0.02	0.02	0.02	0.03
Selenium (Se) Diss	< 0.01	< 0.01	< 0.01	< 0.01
Solvent extract (Oil)	0.025	< 0.006	< 0.006	0.037
Sulfate (S), Diss	16	16	15	16
Sulfide (S), Diss	< 0.02	< 0.02	< 0.02	< 0.02
Zinc (Zn), Diss	< 0.02	< 0.02	< 0.02	< 0.02

Diss = Dissolved

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OTHER ENVIRONMENTAL PROGRAMS

PROGRESS REPORT - 4

Prepared for:

The Rio Blanco Oil Shale Project

Submitted by:

Limnetics, Inc., Environmental Consultants
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October 1975

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2.5 Other Environmental Programs

2.5.1 Soils survey and productivity assessment studies

2.5.1.1 Objectives

The soil studies are designed to fulfill the requirements of the oil shale lease, provide data necessary in the determination of ecosystem relationships and provide information required during revegetation studies.

The objectives of the soil survey are to describe and map soil types. Soil types, depths of the various layers of soil, strike and dip of the soil, slopes, vegetation cover and erodibility are described.

Consult Progress Report 2, Section 2.5.1.1 for additional objectives of the soils program.

2.5.1.2 Methods

Methods employed in the soil studies are described in Section 2.5.1.2 of Progress Report 2.

2.5.1.3 Results

Preliminary soil surveying and mapping has been carried out by the Soil Conservation Service (SCS). A preliminary soils map has been prepared by the SCS and is currently undergoing further revisions. A general description of the twelve soil types encountered during surveying and mapping by the SCS are discussed below.

The aridic haploboroll, loamy-skeletal, mixed, unnamed series consists of moderately deep, well-drained soils that formed in colluvium on foothill sideslopes. These soils have slopes of 12 to 50 percent. Mean annual precipitation is about 46 cm (18 inches), and the mean annual temperature is about 5 to 6 C (42 F). The typical pedon is channery loam, 12 to 60 percent slopes, SW¼ NW¼ Section 10, T1N, R99W.

The Forelle series consists of deep, well-drained soils that formed in calcareous aeolian sediments. Forelle soils are on uplands and terrace slopes and have slopes of 3 to 15 percent. Mean annual precipitation is about 35 to 46 cm (14 to 18 inches), and mean annual air temperature is about 5 to 6 C (42 F). Forelle soils are similar to the Piceance and Yamac soils. Piceance soils have a lithic contact less than 100 cm (40 inches). Yamac soils do not have an argillic horizon. Typical pedon of Forelle loam, 3 to 25 percent slopes, about 0.5 km (0.3 mile) east and 0.3 km (0.2 mile) south of the northwest corner of Section 30, T1N, R93W.

The Glendive series consists of deep, well-drained soils formed in alluvial materials. Glendive soils are in valley positions and have slopes of 2 to 9 percent. Mean annual precipitation is about 35 cm (14 inches), and mean annual air temperature is about 6 C (43 F). Glendive soils are near the Hagga, Havre and Hanly soils. Hagga soils are poorly drained; Hanly soils have a sandy control section; and Havre soils are finer textured than the Glendive soils. Typical pedon of Glendive fine sandy loam, 2 to 9 percent slopes, about 90 m (100 yards) south of the Ryan Gulch Road and 15 m (50 feet) east of the fence in the NE¼ of NE¼ Section 12, T2S, R98W.

The Hagga series consists of deep, very poorly-drained soils that formed in alluvium derived mainly from calcarious sandstones and shales. Hagga soils are on valley bottoms and have slopes of 0 to 5 percent. The mean annual precipitation is about 40 cm (16 inches), and the mean annual temperature is about 7 C (45 F). Hagga soils are similar to the Buford and Havre soils. Buford soils have dark surfaces and have very gravelly substrata. Havre soils are well drained to moderately well drained, lacking mottles above a depth of 100 cm (approximately 40 inches). Typical pedon of Hagga loam, 0 to 5 percent slopes, 45 m (150 feet) south and 49 m (160 feet) west of northwest corner of Section 5, T3S, R96W 53 m (175 feet) southwest of Stuart Gulch gaging station).

The Hanly series consists of deep, somewhat excessively drained soils that have formed in detrital alluvium of calcareous sandstone and shale origin. Hanly soils are on alluvial fans and in narrow valleys with slope gradients of 2 to 9 percent. Mean annual precipitation is about 15 cm (6 inches), and the mean annual air temperature is about 7 C (45 F). Hanly soils are similar to the Glendive soils with which they are closely associated. Glendive soils differ in being mainly sandy loam at 25 to 100 cm (approximately 10 to 40 inch) depths. Typical pedon of Hanly gravelly loamy fine sand, 2 to 9 percent slopes, 2.4 km (1.5 miles) up Ryan Gulch, 60 m (200 feet) north of road, in the SE¼ of SE¼ Section 31, T1S, R98W.

The Havre series consists of deep, well-drained soils that formed in calcareous mixed alluvium. Havre soils are on floodplains and low terraces and have slopes of 0 to 8 percent. Mean annual precipitation is about 40 cm (16 inches), and the mean annual air temperature is about 6 to 7 C (44 F). Havre soils are similar to Uffens, Glending, Youngston, Hagga, Hanly and Glendive. Uffens soils are natric and saline in reaction. Glending and Youngston occur in a warmer temperature zone. Glending, Hanly and Glendive have sandier control sections. Hagga soils are poorly drained. Typical pedon of Havre loam, 0 to 8 percent slopes, 0.6 km (0.4 mile) south, 60 m (200 feet) east of the NW corner of Section 32, T1N, R94W.

The lithic haploboroll, loamy-skeletal, mixed, unnamed series consists of shallow, well-drained soils that formed in sandstone residuum on upland slopes and ridge tops. These soils have slopes of 5 to 50 percent. Mean annual precipitation is about 46 cm (18 inches), and the mean annual air temperature is about 5 to 6 C (42 F). The typical pedon is very channery loam, 5 to 50 percent slopes, NE¼ NW¼ Section 22, T1N, R99W.

The Piceance series consists of moderately deep, well-drained soils that formed in residuum from sandstone and modified with aeolian material. Piceance soils are on upland slopes and ridges and have slopes of 5 to 15 percent. Mean annual precipitation is about 35 to 46 cm (14 to 18 inches), and the mean annual air temperature is about 6C (43 F). Piceance soils are similar to Forelle, Yamac and Kinnear. Forelle, Yamac and Kinnear soils are deep and do not have bedrock above 100 cm (approximately 40 inches). Kinnear soils occur in a warmer temperature zone. Typical pedon of Piceance fine sandy loam, 5 to 25 percent, NE¼ of NE¼ Section 33, T2S, R99W.

The Redcreek series consists of shallow, well-drained soils that formed in sandy material weathered from underlying calcareous sandstone. Redcreek soils are on mountain sideslopes and ridges and have slopes of 5 to 30 percent. Mean annual precipitation is about 40 cm (16 inches), and the mean annual air temperature is about 6 to 7 C (44 F). Redcreek soils are similar to the Rentsac soils. Rentsac soils are skeletal and are on fractured sandstone, while Redcreek soils are non-skeletal and are on massive sandstone. Typical pedon of Redcreek sandy loam, 5 to 30 percent slopes, about 275 m (900 feet) N of SW¼ corner, Section 18, Township 3 South, R96W.

The Rentsac series consists of shallow, well-drained soils formed in residuum from sandstone. Rentsac soils are on foothills (upland entrenched terrace) and have slopes which are 5 to 50 percent. Mean annual precipitation is 40 cm (approximately 16 inches), and the mean annual air temperature is about 6 to 7 C (44 F). Rentsac soils are similar to the Redcreek soils. Redcreek soil is non-skeletal, while Rentsac is skeletal. Typical pedon of Rentsac very channery sandy loam, 5 to 50 percent slopes, under chained pinyon-juniper area, NE¼ SW¼, Section 27, Township 1 North, R98W.

Rock outcrop-Torriorthents, 12 to 90 percent slopes (RT) occurs mainly on southerly aspects in the Piceance Basin on strongly sloping to extremely steep terrace breaks of the many drainageways of this area. Rock outcrop occurs as horizontal sandstone cliffs or dike-like outcrops and as platy siltstone outcrops in 50 to 65 percent of the mapping unit. The remainder of the mapping unit is comprised of Torriorthents, most of which are very shallow and shallow, and a small percentage of moderately

deep and deep Torriorthents in the colluvial and alluvial material. The vegetation is characterisitcally very sparse - few scattered pinyons, junipers and shrubs. These soils have a severe limitation for sanitary facilities and local roads due to shallowness of the soil. These soils are a poor source of material for roadfill and topsoil due to thin layer, small stones and problems of area reclamation.

The Yamac series consists of deep, well-drained soils that formed in alluvium and aeolian materials. Yamac soils are on rolling uplands and ridges and have slopes of 5 to 15 percent. Mean annual precipitation is about 36 cm (14 inches), and mean annual air temperature is about 6 to 7 C (44 F). Yamac soils are similar to the Forelle and Piceance soils. Forelle soils have an argillic horizon not found in the Yamac. Piceance soils overlie bedrock at 50 to 100 cm (approximately 20 to 40 inch) depths. Typical pedon of Yamac loam, 5 to 15 percent slopes, SW¼ of Section 2, T2S, R99W.

The SCS is processing soils for trace element and mechanical analysis.

The selection of a soils contractor is currently being made and the initiation of the program will be started immediately upon contract award. This program will include collection and analysis of soil samples associated with major vegetation types. Trace metal concentrations will be determined and soil/plant relationships will be interpreted.

2.5.2 Archaeological survey

2.5.2.1 Objectives

The archaeological survey was designed to locate archaeological or historical material on Tract C-a, a mile-wide perimeter around the tract and 84 Mesa. The survey was then extended downstream on several drainages, particularly Yellow Creek, to obtain more information on off-tract sites.

The survey was designed to obtain information on the extent of occupation, cultural affiliations, time depth represented and native exploitation of the region. Material found during this study was compared with that described from other areas, particularly the Douglas Creek drainage.

Comparison of artifacts found on Tract C-a was also made with collections held by local individuals, many of whom have been collecting artifacts from the area for many years. The procedure prevented inadvertent omission of scarce or commonly sought after items such as projectile points (arrowheads).

The past existence of trade relationships between local inhabitants and those from areas outside the basin was explored. Evidence that trade had been conducted was revealed by the presence of pottery that had not been locally made and the presence of imported toolstone. These artifacts suggested a widespread contact with areas outside the Piceance Basin.

2.5.2.2 Methods

Two types of ground surface surveys were employed during the investigations. No excavations were done. Both surveys involved systematic walk-overs of the area and collection of artifacts. The following data were recorded for each located collection: field number and distinctive features of the site (such as terrain or structures). Each find was labeled and kept separate from others.

In rough or broken ground, areas that could have been occupied such as benches adjacent to drainages, areas near springs or streams and upland areas that might have been used for hunting or gathering camps were intensively searched. Areas that have produced artifacts in the past were also carefully searched.

In relatively featureless terrain such as 84 Mesa and the alluvial valley floors, team members were spaced a short distance and the area was systematically traversed with team members searching for artifacts.

When artifacts were found, the team then concentrated on that area and collected as much material as could be located. The

search was continued until no more artifacts or chips were found.

After early surveys had progressed sufficiently, information gathered in the field was processed. Types of artifacts obtained and the locations of sites were itemized and mapped, and the emerging pattern of site locations was used to direct the investigation into areas in which the probability of finding additional sites was greatest. This technique prompted surveying down into the more productive lower drainages rather than moving up the drainages toward the less productive Cathedral Bluffs. While the high uplands were probably utilized to some extent, the majority of camp locations were on lower ground.

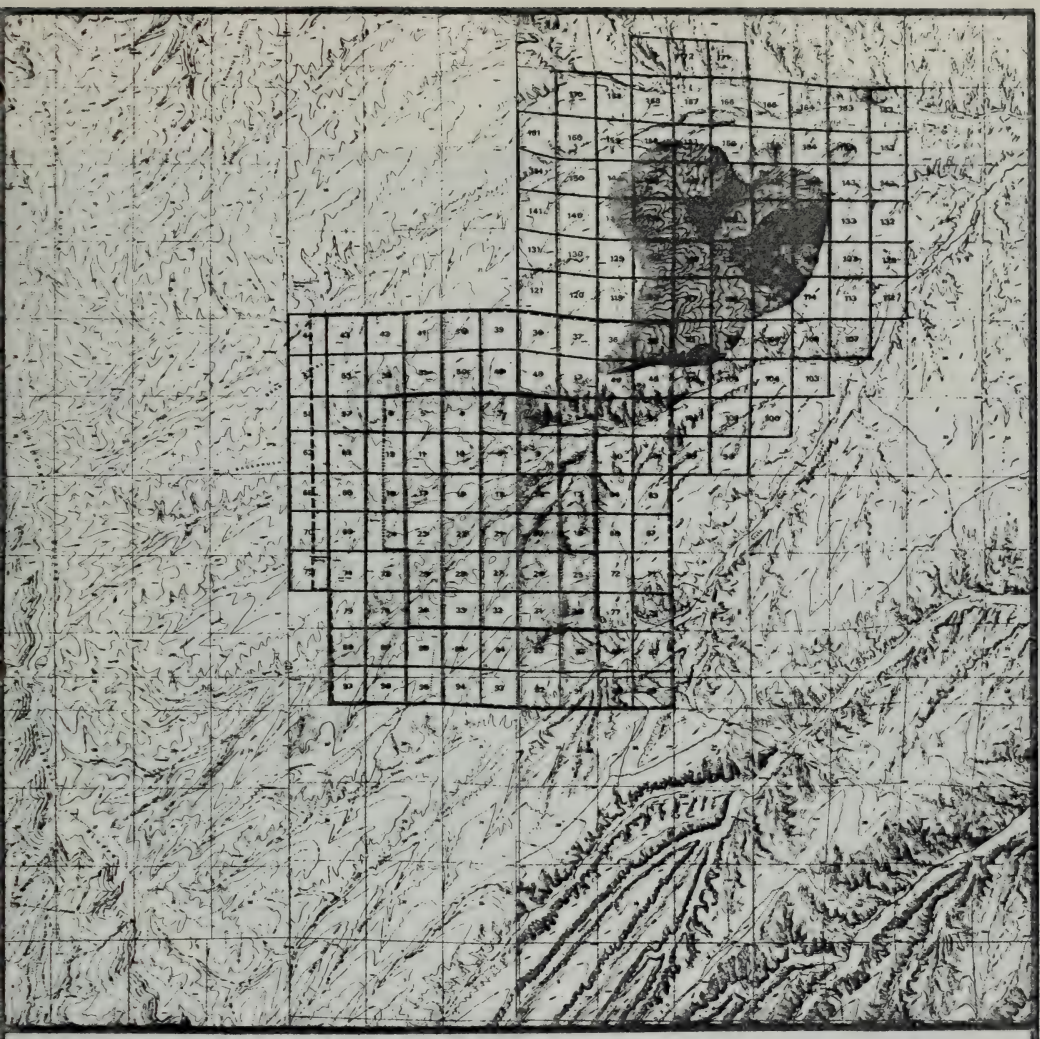
Material recovered in the field was processed in the base station laboratory. Artifacts were washed, labeled with field numbers, identified and recorded. Both site locations and non-productive areas were plotted at the end of each field day.

The initial survey followed the priority system delineated in Figure 2.5.2-1. After this area had been cleared for the presence or absence of sites, the survey was expanded to the areas shown in Figures 2.5.2-2,3 and 4.

In addition to surveys and collections on site, several private collections and museums in Meeker and Dinosaur National Monument were inspected to provide additional background on the archaeological history of the area. A number of caves and overhangs which offered protection and were probable wintering areas for people who utilized the Piceance Basin are found in the Douglas Creek area. One of the most distinctive features of shelters in the Douglas Creek drainage is the amount of rock art. It includes pictographs painted on the walls and petroglyphs which are not painted but are pecked into the rock face. These include depictions of humans, various animals and designs. A similar area with three caves north of Rangely was also inspected.

2.5.2.3 Results

A total of 196 locations produced material that was transported into the area, or modified, by man. These ranged from a single flake of toolstone to concentrations of tools, broken or discarded pieces and wastage associated with the manufacture of tools. The material used for chipped tools included chalcedony, jasper, petrified wood, obsidian and quartzite. These materials are fine grained and were worked by flaking. During tool production, small chips were often discarded if they were too small to serve as secondary tools. This wastage is usually a good indication that an area was once occupied. The color and texture of small tools or flakes found in the study area were quite different from the local shales and sandstones. Since the local stone cannot be worked to produce functional small tools, it is likely that toolstone was imported by the inhabitants. There



ENVIRONMENTAL STUDIES FOR THE RIO BLANCO OIL SHALE PROJECT

TRACT C-a

LIMNETICS, INC.
Denver, Colorado

4/75

ARCHEOLOGICAL SURVEY

999 indicates priority for performance and reporting requirements

84 Mesa spent shale disposal site

--- one mile perimeter of Tract

SURVEYS COMPLETED AS OF JUNE 30, 1975

N

MILES
0 1 2

Figure 2.5.2–1

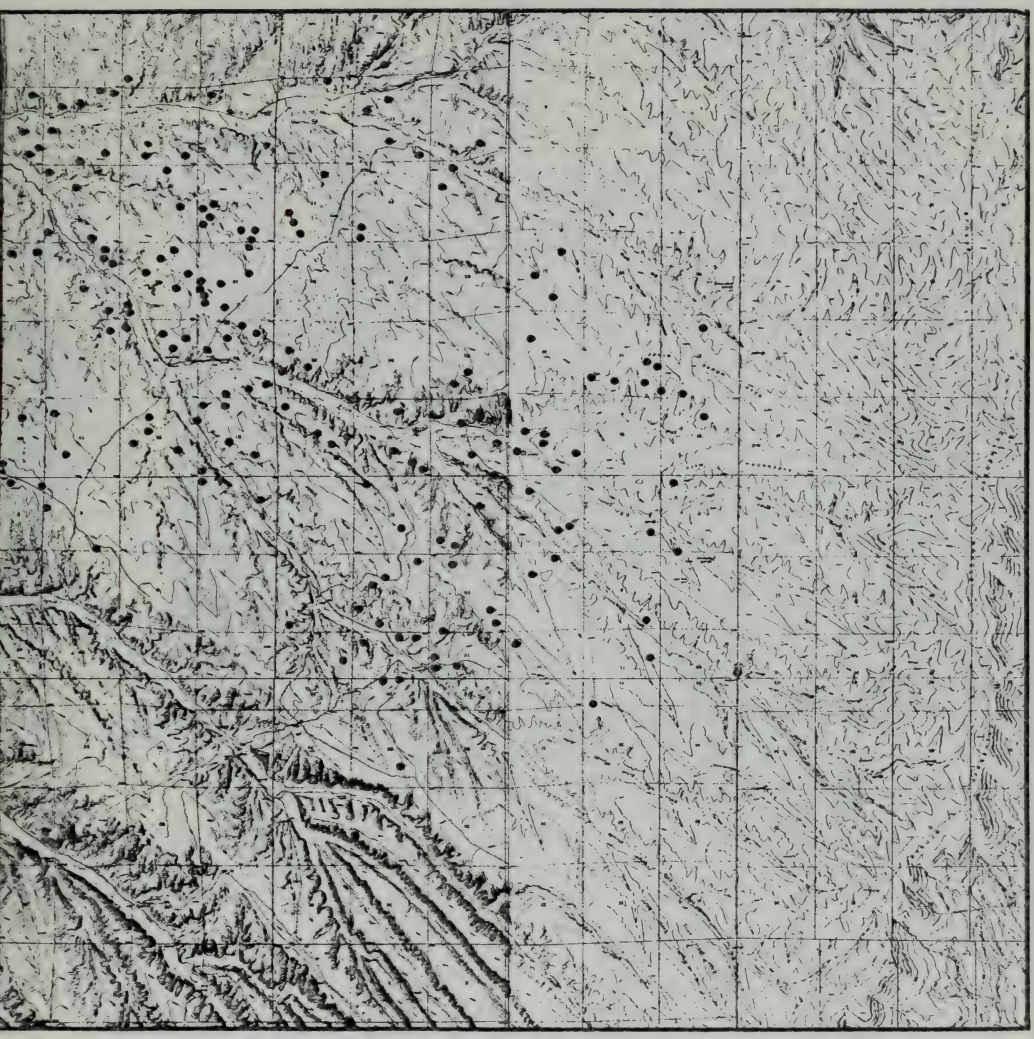


Figure 2.5.2–2 Expanded Archaeological Survey Area.

Dots represent areas surveyed.

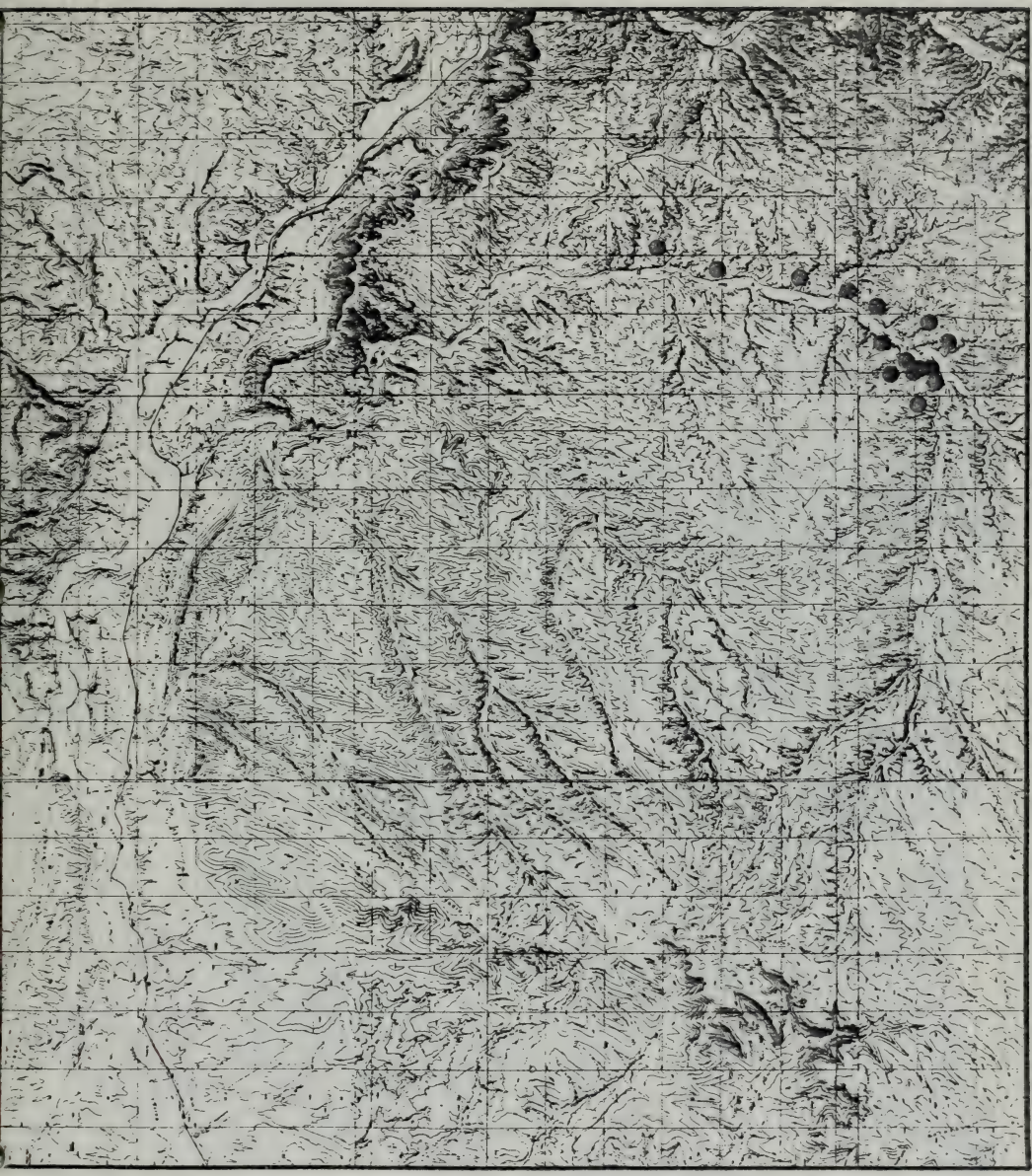


Figure 2.5.2–3 Expanded Archaeological Survey.

Dots represent areas surveyed.

Figure 2.5.2–4 Expanded Survey Area.

Dots represent areas surveyed.

was some use of local stone for larger tools such as choppers and grinding stones. Suitable toolstone supplies are present in the main White River drainage, west into Utah, and in southwestern Wyoming. No quarry sources for toolstone were found during the survey.

Tools used for grinding various vegetal products were also found in the area. The lower element of these tools, the grinding slab, was usually an oval or irregular slab of local sandstone characterized by a depression that had been formed through long use. The handstone, or moveable element, was fashioned from a thin, oval stream cobble. These were of a size that could conveniently be held in one hand. Evidence from this historic period indicates that these tools were used to grind various types of seeds, to hull pinyon nuts, and even in some instances to grind dried meat. Cooking techniques during this period included preparation of liquid or mush foods. Another use of these tools was to grind pigments that could have been used for body painting, decoration of portable objects or painting of pictographs.

The sites that were found in the survey are classed as open sites. Open sites are located in areas in which there is no physical protection other than variations in the terrain. Few caves or overhangs were found, and those investigated did not appear to have been occupied. Camping in the open, which would suggest good weather, was common. Open sites, however, usually yield few artifacts because organic decay, insect or bacterial action and oxidation quickly destroy all but the most durable artifacts. Those found are lithic or stone artifacts. The samples collected during the survey consisted almost entirely of items made from stone. In prehistoric times, tools were often made of many other materials such as wood, bone, antler, horn and plant products that produced fibers or other useful elements. No artifacts made from these perishable materials were found. Unworked bone is scattered through the area, but this is probably a result of hunting activity and winter kills.

A few pieces of broken pottery were found that may have been imported from the Mesa Verde region or from the west, in Utah, and the northwest, in Dinosaur National Monument.

Several classes of artifacts were collected, including projectile points. These are good diagnostic artifacts, as their shapes and chipping design are regionally and temporally distinctive. Most points in the collection exhibit additional modification for attaching to a weapon shaft, including notching or definite base design to hold the sinew used to tie the point on. Broken points (probably discarded at camp sites and replaced with whole new points) are also part of the collection. Careful workmanship and chipping on all edges and both sides of the point are common to the tools in the collection. Good grade (glassy) toolstone was used.

Two types of projectiles were found (Figure 2.5.2-5). The larger projectiles are classified as dart points used for attachment to a short, spear-like shaft. These weapons were usually thrown from a spear thrower, a weapon approximately 2 inches wide and 18 inches long. The other type of projectile points are much smaller and are classified as arrow points. These would indicate use of the bow and arrow. Use of the bow succeeded use of the spear thrower, although there may have been an overlap in their use.

Knives are defined as processing tools that were chipped on both sides to produce a wedge-shaped cutting edge. These were probably primarily used for cutting meat, working hides and for cutting other materials. Two types of knives were made. One was a finished tool with distinct shapes and dimensions. These were fabricated by chipping both the edges and the faces. The other type of knife was merely a flake which was used until it dulled, then discarded. These flakes have extremely sharp edges, much more so than a chipped knife, but the edges are extremely fragile and not very durable. Although knives could have been used to scrape objects, the wear pattern is similar to that produced on steel knives. Drawings of knives found on Tract C-a are shown in Figure 2.5.2-5 and 6.

Scrapers were used to remove unwanted material from hides and other materials. The edge of a scraper differs from that of a knife in that it was chipped away from the edge, giving it an angular surface. Finished scrapers have one flat side and a rounded or convex upper surface. Chips or flakes were sometimes used as scrapers for a particular task and then discarded. Most of the scrapers found in the survey (Figure 2.5.2-6) were too small to have been attached to a handle and were probably held in the fingers. Flakes, while indicative of occupation, are usually not good diagnostic artifacts unless they were used secondarily as tools such as knives or scrapers. Unfortunately, they do not aid in temporal or cultural identification, but their abundance and distribution are good indicators of the amount of occupation at a given site.

Metates (grinding slabs) and manos (handstones) were used for grinding food to a meal or powder. Drills and punches are similar tools to ones in our culture, except that they were made of stone. Cores are the remnants of toolstone from which flakes have been removed. They are not usually tools in themselves. Hammerstones are more or less spherical pieces of tough stone that were used to fabricate or process other materials. Hammerstones were used to shape manos and metates. Choppers are large chipped-edge tools that were used to chop or part various materials. They could have been used in butchering coarse fabrication, or working any non-stone material.

The initial list of tool types and site locations is shown in Tables 2.5.2-1 through 2.5.2-4 for Tract C-a, the 1-mile perimeter, 84 Mesa and off-tract sites.

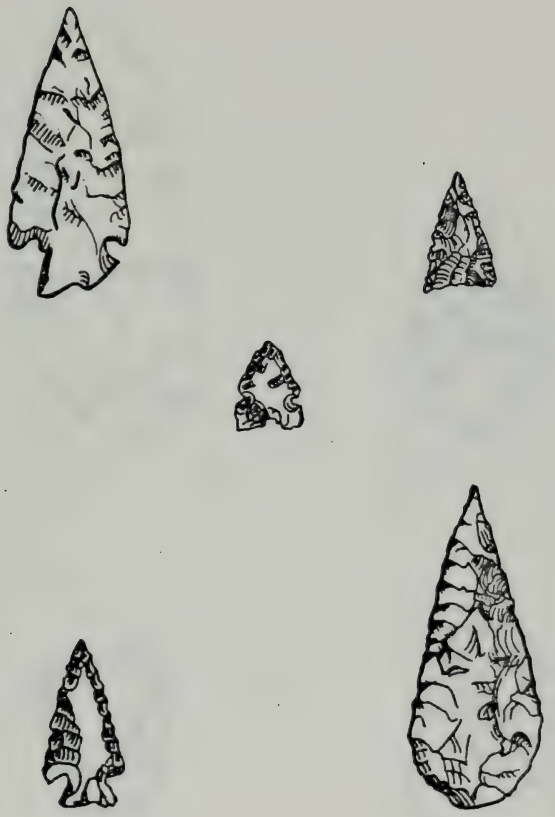


Figure 2.5.2-5 Projectile points and a knife from Tract C-a, RBOSP. Upper right Archaic projectile point, remainder Fremont. Lower right, knife.

Figure 2.5.2-6 Knives and scrapers from Tract C-a RBOSP.
Upper row knives, lower row scrapers.

Table 2.5.2-1 Field site number, site location and initial material culture analysis located June through September 1975 on Tract C-a, RBOSP.

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
4	T2S,	R99W	S3 , NW¼		1f*		3	Metate
5	T1S,	R99W	S34, SW¼ NE¼		1f			
6	T1S,	R99W	S33, SE¼ NW¼	1f	1f			
7	T2S,	R99W	S4 , NW¼ NE¼		1f	2	12	
8	T1S,	R99W	S34, NW¼ SW¼					Punch
9	T1S,	R99W	S33, NW¼ SW¼				3	
14	T2S,	R99W	S4 , NE¼ SE¼			1		
15	T1S,	R99W	S34, SE¼ SW¼				7	Tool fragment
16	T1S,	R99W	S34, SW¼ SW¼			1	2	
29	T2S,	R99W	S4 , NE¼ SE¼					Tool fragment
33	T1S,	R99W	S33, SE¼ SW¼			1f		
34	T1S,	R99W	S33, SW¼ NE¼			1f		
37	T2S,	R99W	S10, NW¼ SW¼	1f				
38	T2S,	R99W	S9 , NW¼ SW¼				1	
39	T2S,	R99W	S10, SW¼ SW¼				2	
40	T2S,	R99W	S10, NW¼ NE¼	1			1	
41	T2S,	R99W	S3 , SE¼ SE¼	1	2f	6	2	Drill
42	T2S,	R99W	S3 , SW¼ SE¼					Metate
43	T2S,	R99W	S9 , NE¼ NW¼					Mano fragment 2 tool fragments
45	T1S,	R99W	S33, NE¼ SE¼	1				
				1f			12	
51	T2S,	R99W	S10, SE¼ SE¼				1	
54	T2S,	R99W	S3 , NW¼ SW¼				3	Core

* Identifiable fragmentary tool

Table 2.5.2-2 Field site number, site location and initial material culture analysis for archaeological sites located June through September 1975 in the 1-mile perimeter of Tract C-a, RBOSP.

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
10	T1S,	R99W	S29, NW¼ SW¼				1	
11	T1S,	R99W	S29, SW¼ SW¼			1	1	
12	T1S,	R99W	S29, SW¼ SE¼			1	4	
13	T1S,	R99W	S29, NW¼ SW¼		1f*		1	Drill
20	T2S,	R99W	S14, NW¼ NW¼	2	4f	1	51	
21	T2S,	R99W	S15, SW¼ NE¼		1		13	
25	T1S,	R99W	S27, SW¼ SE¼		2f	1	6	
28	T2S,	R99W	S11, SW¼ SW¼				1	
30	T2S,	R99W	S17, SE¼ SE¼	1f		2	20	
32	T1S,	R99W	S27, NE¼ SW¼			1f	16	
35	T2S,	R99W	S11, SW¼ NE¼				2	
36	T2S,	R99W	S11, NE¼ SE¼	1f		3f	20	Hammerstone fragment
44	T2S,	R99W	S17, SW¼ NW¼	1			1	
47	T1S,	R99W	S35, NE¼ NW¼		1f		22	
50	T2S,	R99W	S16, NE¼ NE¼				2	
52	T2S,	R99W	S15, SW¼ NE¼		1		5	
53	T2S,	R99W	S6 , SW¼ NE¼				1	Tool stone
55	T2S,	R99W	S15, SW¼ NE¼	2f			5	Mano fragment
56	T2S,	R99W	S6 , SW¼ SE¼	1				
				1f	3f			Mano, fossils
64	T2S,	R99W	S14, NW¼ SE¼	2f	3f			
65	T2S,	R99W	S14, NW¼ NW¼	1				Hammerstone
				2f		1f	110	Mano fragment
66	T2S,	R99W	S14, NE¼ NW¼	2f			35	
67	T2S,	R99W	S11, SW¼ SE¼				11	
70	T2S,	R99W	S11, SW¼ SW¼					Toolstone
71	T2S,	R99W	S11, NW¼ NW¼				9	
72	T2S,	R99W	S2 , NE¼ SW¼			1		
81	T2S,	R99W	S2 , NE¼ NE¼	1				
				2f			2	Chopper
82	T1S,	R99W	S35, SW¼ SW¼				2	Mano fragment
83	T1S,	R99W	S35, SW¼ SW¼					Mano
84	T1S,	R99W	S35, NE¼ SE¼	2f		2f	24	3 Mano fragments Hammerstone

Table 2.5.2-2 (Continued)

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
94	T1S,	R99W	S29, NW¼ SW¼		4f	2		
						1f	13	
95	T1S,	R99W	S28, SW¼ NE¼	1f			2	
97	T1S,	R99W	S30, NE¼ NW¼					Tool stone
103	T1S,	R99W	S30, SE¼ SE¼				3	
104	T1S,	R99W	S31, SE¼ NW¼				1	

* Identifiable fragmentary tool

Table 2.5.2-3 Field site number, site location and initial material culture analysis for archaeological sites located June through September 1975 on 84 Mesa, RBOSP.

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
3	T1S,	R99W	S36, NW¼ SW¼	1f*	1f		5	
17	T1S,	R98W	S18, SE¼ SW¼		1f	3f	6	
18	T1S,	R98W	S18, SE¼ SW¼	1				
				2f	1f	1f	67	
21	T1S,	R99W	S25, SE¼ NE¼	1	1f		3	Mano, Metate
22	T1S,	R98W	S18, SE¼ SW¼				9	
23	T1S,	R98W	S30, NW¼ NE¼	3	1			
				8f	2f		215	Hammerstone, drill, 3 choppers
24	T1S,	R99W	S25, NW¼ SE¼	1f			147	3 Mano fragments
26	T1S,	R98W	S20, NW¼ SW¼	1	2f	2f	1	
27	T1S,	R98W	S30, SE¼ NE¼	2f			54	Potsherds, scrapers, knives, blades
31	T1S,	R98W	S30, SE¼ NW¼	2			1	
46	T1S,	R98W	S8 , SW¼ SW¼	1f			20	1 historic knife, hammerstone, 5 Mano fragments, chopper, drill
48	T1S,	R98W	S19, SW¼ NW¼	1			2	
49	T1S,	R98W	S19, NW¼ SE¼	1f			3	
57	T1S,	R98W	S19, NE¼ SE¼				74	
58	T1S,	R98W	S20, SW¼ NW¼				3	1 potsherd
59	T1S,	R98W	S20, SE¼ NW¼					Mano fragment
60	T1S,	R98W	S19, NE¼ SE¼					Mano fragment
61	T1S,	R98W	S19, NE¼ SE¼					Mano
62	T1S,	R98W	S19, SE¼ SE¼			1f	2	
63	T1S,	R98W	S20, NE¼ NW¼				2	
68	T1S,	R98W	S8 , SW¼ SE¼			1f	12	
69	T1S,	R98W	S17, NE¼ NW¼				1	
73	T1S,	R98W	S18, NE¼ SE¼	1f			1	Anvil, Mano
74	T1S,	R98W	S18, NE¼ SE¼					2 Mano fragments
75	T1S,	R98W	S18, NE¼ SE¼				3	
76	T1S,	R98W	S17, NW¼ SW¼			1f		
77	T1S,	R98W	S18, NE¼ SE¼					Toolstone
80	T1S,	R99W	S13, SW¼ SE¼	1f	2f	1	30	Mano fragment
85	T1S,	R99W	S13, SW¼ SE¼		2f	5f	96	
86	T1S,	R99W	S13, NE¼ SE¼	1f	3f	1		Hammerstone frag-
						2f	72	ment, 2 Mano fragments

Table 2.5.2-3 (Continued)

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
87	T1S,	R98W	S30, NW¼ NE¼	1f			37	
88	T1S,	R98W	S30, NW¼ NW¼	1f		2		Mano
90	T1S,	R99W	S36, NE¼ SW¼	4f	1f	1		
						1f	20	Mano
91	T1S,	R99W	S11, SW¼ SE¼				1	
92	T1S,	R98W	S8 , SW¼ SE¼			1		
						1f*	1	
93	T1S,	R98W	S7 , NW¼ SW¼					Mano fragment
105	T1S,	R99W	S14, SE¼ SE¼		1f		1	
106	T1S,	R98W	S29, SW¼ NW¼				1	
107	T1S,	R99W	S36, SE¼		2f		14	
108	T1S,	R99W	S14, SE¼ SE¼				4	
109	T1S,	R99W	S36, NE¼ NE¼	2	2f		84	Mano
110	T1S,	R99W	S25, NE¼ SE¼			1		
111	T1S,	R98W	S30, SE¼ SW¼	1f	2f	4	102	Drill fragment, Mano fragments, toolstone
112	T1S,	R98W	S30, SW¼ SE¼				2	Toolstone
113	T1S,	R98W	S30, SW¼ SW¼	1f	1		7	
114	T1S,	R98W	S30, SE¼ SE¼				6	
115	T1S,	R98W	S30, SE¼ SE¼			1	19	Drill fragment
116	T1S,	R98W	S20, SW¼ NE¼	2	1f		13	Toolstone
117	T1S,	R98W	S29, NE¼ NW¼		2f		11	Mano fragment
118	T1S,	R98W	S7 , NE¼ NE¼	1f	2f	1f	25	2 Mano fragments
119	T1S,	R99W	S13, SW¼ NE¼				12	2 Mano fragments
120	T1S,	R99W	S11, SE¼ NE¼				2	
121	T1S,	R99W	S2 , SW¼ SE¼					Mano fragment
122	T1S,	R99W	S12, NE¼ NW¼			1f	6	
123	T1S,	R99W	S11, SW¼ NE¼		1f	1		
						1f	21	Core, 2 Mano fragments, toolstone
124	T1S,	R99W	S15, NW¼ NW¼	1			72	
125	T1S,	R98W	S19, SW¼ SE¼			1		
126	T1S,	R99W	S15, SE¼ NE¼				1	
127	T1S,	R99W	S11, SW¼ SW¼	1			2	
128	T1S,	R99W	S15, NW¼ NE¼			2f	14	3 Mano fragments, 1 hammerstone

* Identifiable fragmentary tool

Table 2.5.2-4 Field site number, site location and initial material culture analysis for archaeological sites located June through September 1975 off-tract outside Tract C-a periphery and 84 Mesa.

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
19	T2S,	R99W	S13, SW¼ NW¼	2f*	1			
					1f	1f	18	Mano, hammerstone
78	T1S,	R98W	S21, NW¼ NW¼	1f		1f	5	Mano fragment
79	T1S,	R98W	S16, SE¼ SW¼		1f			
89	T2S,	R100W	S13, SE¼ NE¼		1f			
96	T1S,	R98W	S9 , SE¼ SW¼					Mano fragment
98	T1S,	R98W	S5 , SE¼ SE¼				1	Mano
99	T1S,	R98W	S9 , NW¼ NW¼					Mano fragment
100	T1S,	R99W	S21, SE¼ SW¼				5	Mano fragment
101	T1S,	R99W	S21, NW¼ SE¼	1				
102	T1S,	R99W	S21, NW¼		1f			
129	T1S,	R98W	S32, NW¼ NE¼	4f	1f	1f	92	
130	T1S,	R98W	S9 , NE¼ SE¼					2 Mano fragments
131	T1S,	R98W	S9 , SE¼ SE¼					1 Mano fragment
132	T1S,	R98W	S9 , SE¼ SE¼		1f		14	
133	T1S,	R98W	S10, SW¼ SW¼					Mano fragment
134	T1S,	R98W	S9 , SE¼ SW¼				5	
135	T1S,	R98W	S21, NE¼ SW¼			1		
136	T1S,	R98W	S22, NW¼ NW¼			1		
137	T1S,	R98W	S32, NE¼ NW¼	1f				Mano fragment
138	T1S,	R98W	S31, SW¼ SW¼	1f			2	Mano fragment
139	T1S,	R98W	S10, SW¼ SE¼		1f		51	
140	T1S,	R99W	S9 , NW¼ NE¼	2f	4f	2		
						1f	95	Drill, 5 tool fragments, Mano, 4 Mano fragments, toolstone
141	T1S,	R99W	S9 , NW¼ NE¼	1f	1f	1	7	2 Mano fragments
142	T1S,	R99W	S10, NW¼ NW¼			1		3 potsherds, core, hammerstone, Mano, 10 Mano fragments
144	T1S,	R99W	S10, NE¼ NW¼	2f		2f	28	Mano fragment
145	T1S,	R99W	S10, NW¼ SW¼	1f	1f	3f	15	
147	T1S,	R98W	S10, SE¼ NE¼		1f	1		
						4f	23	
148	T1S,	R98W	S11, NW¼ NW¼	3f	2f	3f	52	
149	T2S,	R98W	S4 , SW¼ SW¼			1	3	1 potsherd

Table 2.5.2-4 (Continued)

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
150	T1S,	R98W	S32, NE¼ SE¼			2f	4	
151	T1S,	R98W	S33, SW¼ SE¼		3f	1	4	Mano fragment
152	T1S,	R98W	S11, NW¼ SE¼	1	1f	1	12	Mano, hammerstone, 1 hammerstone fragment
153	T1S,	R98W	S11, NE¼ NE¼	1f	4f	7	118	Mano fragment
154	T1S,	R98W	S2 , SW¼ SW¼	1		1		
				2f*	1f	2f	8	Mano
155	T1S,	R98W	S2 , SW¼ SW¼				5	
156	T1S,	R98W	S2 , SW¼ SW¼				4	
157	T1S,	R98W	S2 , NE¼ SW¼				21	
158	T1S,	R98W	S11, NW¼ NW¼				5	
159	T1S,	R98W	S11, NW¼ NW¼			4	9	Hammerstone, 3 Mano fragments
160	T1S,	R98W	S16, NE¼ NE¼	1f	4f	4f	42	1 potsherd, 1 Mano, 3 Mano fragments
161	T1S,	R98W	S16, SW¼ NE¼		1f		4	
162	T1S,	R98W	S34, NW¼					Mano fragment
163	T1S,	R98W	S33, NE¼ NE¼				4	Mano fragment
164	T1S,	R99W	S8 , NE¼ NE¼	2f	4f		10	Hammerstone, 6 Mano fragments
165	T1S,	R98W	S16, SE¼ SE¼	2f	1f		5	Core
166	T1S,	R98W	S1 , SW¼ NW¼		1	1	9	Mano, Mano fragment
167	T1S,	R98W	S35, SW¼ SW¼	2f	1f		2	2 cores, Mano fragment
168	T2S,	R98W	S2 , SE¼ SE¼				3	
169	T1S,	R97W	S19, SW¼ SW¼				2	Mano fragment
170	T1S,	R97W	S18, SE¼ NW¼				1	
171	T1S,	R98W	S29, NE¼ NE¼				3	
172	T1S,	R98W	S28, NW¼ NW¼				3	
173	T2S,	R98W	S6 , NW¼ NW¼			3	5	
174	T1S,	R98W	S31, NW¼ NE¼		1f	2f	10	Mano, Mano fragment
175	T1S,	R98W	S31, NW¼ NE¼		1f	2f	10	Mano, Mano fragment, 5 tool fragments
176	T1S,	R98W	S31, NE¼ NE¼			1	7	Mano, tool fragment, core
177	T1S,	R98W	S32, NW¼ NW¼					Structures

Table 2.5.2-4 (Continued)

Field Number	Township	Range	Section	Point	Knife	Scraper	Flakes	Other
178	T2S,	R98W	S6 , NE¼ NE¼	1f		1		
179	T1S,	R98W	S32, SW¼	1f			3	Tool fragment
180	T1S,	R98W	S31, SE¼	1f			2	Tool fragment
181	T1S,	R98W	S32, SW¼ NE¼		1f		11	Tool fragment
182	T1S,	R98W	S31, SE¼ SE¼				38	Tool fragment
183	T2S,	R99W	S14, NE¼ SW¼					Tool fragment
184	T2S,	R99W	S23, NE¼ SW¼				1	Tool fragment
185	T2S,	R98W	S19, NW¼ SW¼			1	1	Tool fragment
186	T1S,	R98W	S1 , SW¼ NE¼	2f*	1f	3f	36	Hammerstone, Mano fragment, 4 tool fragments
187	T1S,	R98W	S36, SE¼				1	Hammerstone, Mano
188	T1N,	R98W	S25, NE¼	1f		1	10	Mano, Mano fragment, 5 tool fragments
189	T2S,	R98W	S3 , NW¼	1f	1f	1	45	2 tool fragments
190	T2S,	R98W	S4 , SE¼ NE¼		1f	5	41	3 Mano fragments, 3 tool fragments
191	T2S,	R98W	S4 , NW¼ NE¼	1				
				1f			8	Mano, 2 Mano fragments, 2 tool fragments
192	T1N,	R98W	S23, NW¼ NW¼			1	1	
193	T1N,	R98W	S23, NE¼ NW¼	1f		1	14	Tool fragment, Mano fragment
194	T1N,	R98W	S13, W½	3f		2	3	3 tool fragments, 2 hammerstone fragments, 3 tool fragments
195	T1S,	R98W	S34, NE¼ SE¼	1				
196	T1N,	R98W	S31, NW¼ NE¼		1			
					1f	2f	10	Mano, Mano fragment, 3 tool fragments

* Identifiable fragmentary tool

Sites yielding a concentration of tool wastage and artifacts were called lithic scatters. These represent some permanence of occupany, at least long enough to produce, lose or discard the materials found. These areas may have been used intensively during a short period of time or may represent a camp that was repeatedly used over a period of years. No sites appeared to have been year-round camps, but merely gathering places for utilization of a particular resource. The aboriginal occupation of Tract C-a and the surrounding Piceance Basin was probably seasonal. The Basin was probably not used during the winter and spring because of inclement weather in the winter and poor hunting possibilities in the spring. The combination of hunting tools, meat and skin processing tools, and tools used for the preparation of vegetal materials would suggest that the area was occupied from summer through fall. Scarcity of food probably precludes the presence of large groups of people. The types of tools would suggest two patterns of exploitation that can be interlocked in terms of time. In the late summer and fall, hunting and gathering could have been practiced simultaneously. Hunting was probably performed by men, and gathering by women and children except during highly successful seasons when processing of game and gathering may have been shared. The area was primarily used as a source of game and vegetal products. Good harvests of pinyon nuts probably drew people into the area in some instances. The term "Piceance" locally translated from the Ute as "land of tall grass" may indicate some utilization of grasses, although most meadow species are not commonly used for food. Agriculture was probably not practiced in the Basin, although it may have been in lowland areas to the north and east along the major drainages.

Hunting was a primary concern, but the killing and butchering of deer or elk leaves very little evidence. Once the meat has been stripped from the bones, or the animal butchered, the meat utilized and the bones discarded, the evidence disappears through natural processes. Soil formation and the covering of the bones by alluvial action did not seem to occur. No kill sites were found.

Field analysis indicates there were at least four periods of occupation of the area: an Archaic period followed by the Fremont culture, then Ute and finally Anglo.

The Archaic or Desert Culture was initially defined in Utah. Similar material has been found in the high valleys and drainages on the Western Slope of Colorado. Similar tools have been found in southern Wyoming and along the Front Range of Colorado. The time depth in Utah can be extended back at least 10,000 years.

The social unit seems to have been a family of two or perhaps three generations including husbands and wives and dependent children. Seasonal opportunities dictated the movement of the

group and any resource that produced edible food was exploited. A considerable knowledge of natural history, seasonal patterns of game movements and ripening times of various plants was needed. Material culture was geared to frequent changes in location. Flexible containers of hide or basketry were used instead of ceramics. Other types of equipment were practical and portable. Clothing was minimal and housing only constructed when a subsistence item was plentiful enough to support the group in one place for a period of time. Caves or overhangs were used when they occurred. Exploitation patterns indicate that, in addition to game and plants, fish, insects, waterfowl, rodents and reptiles were eaten. Artifacts from this sample that can be identified with the Archaic are primarily projectile points. Dating of this occupation could extend back several thousand years, but this inference cannot be positively confirmed from surface material.

The Fremont Culture, originally defined from Utah and northwestern Colorado, continues the Archaic pattern of subsistence. Agriculture and pottery were diffused into the area from the Southwest. Prior to A.D. 400, there was considerable influence from the Four Corners region. Five subdivisions of that pattern have been identified in Utah and two border the northwestern portion of Colorado. One, the Uinta area, is located in northeastern Utah and the San Rafael, the other, is in eastern central Utah. The time span for these periods is from approximately A.D. 450 to 1400. These groups revealed less puebloan contact.

Most artifact material shows a continuation from the Archaic. Projectile points decreased in size and differed in outline, but most tools were not altered. Ornaments and pottery were added and leather footgear and clothing become more common. Clay figurines of men and women have been found in several areas, but not in the Tract C-a area. While agriculture expanded the economic base, hunting and gathering were still most important. Social patterning did not differ significantly from that of the Archaic.

The Meeker region is noted for the Ute massacre at Meeker's trading post. The time and extent of the Ute occupation is less well known. The Ute may well be a continuation out of Fremont, with the addition of the horse and items of European manufacture. Several sites were found which had Wickiups or the conical frames for small houses. The shape is tipi-like, with the use of smaller brush and juniper bark as the covering. Some are still standing and show the interlocked main frame elements. Unfortunately, artifacts at these sites were very scarce and do not aid in dating the structures. At one site, a butcher knife was found; however, this could have been lost by Anglos.

Recent historic material is largely that left by deer hunters. Several early ranches, houses and a school are near the study area. There is a historic horse trap on 84 Mesa that has not been in use for some time. The majority of Anglo occupation is in the Ryan Gulch and Yellow Creek areas.

2.5.3 Revegetation

2.5.3.1 Objectives

The extraction and processing of oil shale rock from Tract C-a will result in the creation of processed oil shale disposal piles. As an integral part of the rehabilitation plans for lands affected by oil shale processing, these disposal piles are to be reclaimed in such a way as to be compatible with the existing landscape and the biota which inhabit it. Revegetation methods should be available at the onset of shale processing to assure that this compatibility is realized. The overall goal of a revegetation plan for Tract C-a disposal piles is to develop self-sustaining plant (and animal) communities in equilibrium with local climate and substrate conditions, and not wholly unlike the existing vegetation. Although considerable research has been done on methods of revegetating semi-arid lands and processed oil shale, it is not specific enough to meet the objectives set forth above for revegetation of Tract C-a disposal piles. Thus, a series of long-term experiments to fill existing data voids are to be conducted. The initial revegetation program is designed to run from Fall 1975 through Winter 1978. It will involve the application of a number of treatments, such as mulching types, fertilizer schedules, and a species combination to a number of artificially created substrates in field test plots designed to simulate, to some extent, processed shale disposal piles. Based on the results of these studies, additional experiments will be determined in conjunction with the Area Oil Shale Supervisor.

The characteristics of processed oil shale disposal piles, as envisioned at this time, are pertinent to the revegetation program. The design elements of these disposal piles are being developed jointly by engineers and ecologists in an attempt to create substrates which are conducive to successful revegetation. Tract C-a revegetation experiments are discussed in light of the planned disposal pile characteristics and in light of existing knowledge about revegetation of the area and substrates incorporating processed oil shale.

2.5.3.2 Methods

a. Design of Disposal Piles - As a basis for designing initial revegetation experiments, it was necessary to consider the characteristics of processed oil shale piles to be revegetated and the kinds of information available on revegetation techniques for semi-arid lands and spent oil shale substrates in particular.

   Preliminary designs call for a typical disposal pile to have the following strata, from top to bottom:

10 to 15 cm (4 to 6 inches) of topsoil
15 to 30 cm (6 to 12 inches) of topsoil
30 to 60 cm (~6 inches) of crushed rock
60 to 100 cm (~2 to 3 feet) of large boulders
"overburden"
150 cm (~5 feet) of 95% compacted processed oil shale
0 to several hundred meters (0 to several hundred feet) of 80% compacted processed oil shale
150 cm (~5 feet) of 95% compacted processed oil shale
(The above values represent minimum depths for each strata.)

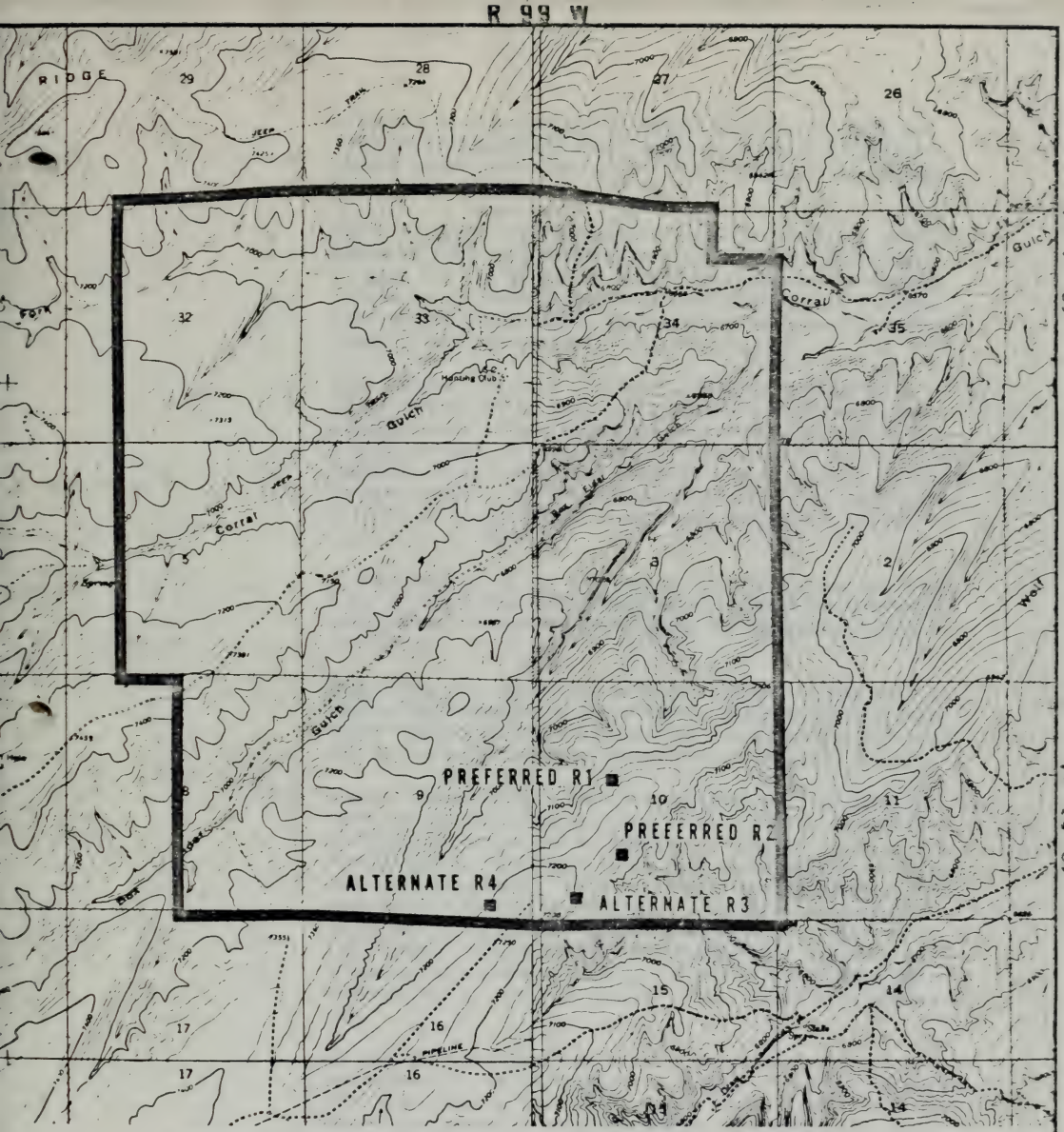
Slopes will be recontoured to blend with the natural landscape, with slopes of not more than 33% (3:1) where revegetation is planned. Catchment basins will be constructed to collect excess runoff. Topsoil substrate and crushed rock will probably be obtained from the same location as the disposal piles.

The configuration and internal characteristics of disposal piles as described above should provide an adequate rooting medium to support plant cover comparable to pre-mining conditions. Topsoils will assure reasonable levels of organic matter and nutrients and provide a residual seed and rhizome source while subsoils should retain moisture for utilization during periods when evaporation normally exceeds precipitation. The overburden and/or quarried rock layers are designed to: 1) reduce mass movement of soils, 2) break capillary migration of dissolved salts from the processed oil shale up into the active rooting zone where excess salts could inhibit plant growth, and 3) inhibit contact of roots with spent oil shale where toxic elements may be incorporated into plant tissues and subsequently ingested by herbivores.

Although the precise location of disposal piles resulting from Tract C-a mining has not been determined, preliminary plans suggest that they will be situated in the 84 Mesa area (T1S, R99W, Section 23 and 24), to the northeast of the tract. Soils on the proposed offsite disposal area are similar to those found on the revegetation site (SCS, 1975). The vegetation is predominantly sagebrush and pinyon-juniper.

b. Selection of Species - A mixture of species which will provide a greater stability and a greater diversity of food and cover for local fauna will be used.

c. Location of Test Sites - Location of preferred and alternate test sites are presented in Figure 2.5.3-1. All sites are



LEGEND

- TRACT OUTLINE
- 1975 REVEGETATION TEST PLOTS

GULF - STANDARD (INDIANA)

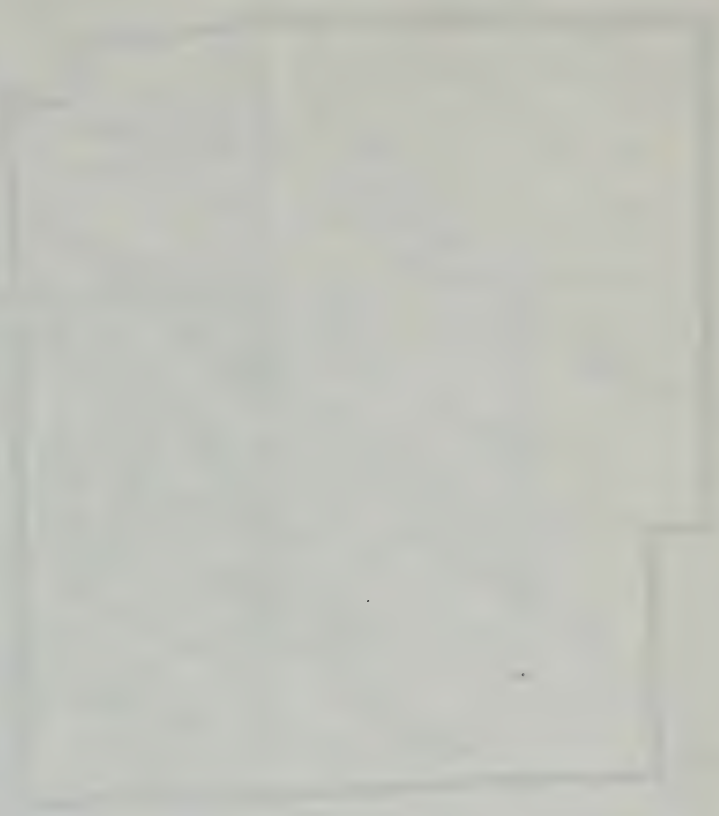
RIO BLANCO OIL SHALE PROJECT

TRACT C-a

RIO BLANCO COUNTY, COLORADO

2.5-28

0 3000



situated on side slopes, between elevations of 2160 and 2200 m (7100 and 7200 feet) adjacent to Wolf Ridge Road in the southeast corner of the tract (T1S, R99N, Section 10).

The first year experiments will utilize two sites on opposing slopes at comparable elevations and steepness to test for the effect of aspect on revegetation success. Trials in the two subsequent years will utilize a single site on the slope having the more extreme drought conditions of the two original sites tested.

d. Plot Layout - Sixteen treatments will be applied to a 10 by 10 m (3.28 by 3.28 feet) plot and replicated three times at each site. Each plot will be surrounded by a 3-m (9.84 feet) buffer zone. Treatments will be allocated randomly in each of three complete blocks located adjacent to each other. The total dimensions of a site sample area will be 55 by 165 m (180.4 by 541.2 feet) or 9,075 m^2 (0.91 ha/2.24 acre).

Within each 10 by 10 m treatment plot a minimum of three 1 by .5 m (3.28 by 1.64 feet) subplots will be randomly established and marked permanently for subsequent data collection.

Test sites will be fenced with four-strand barbed wire to discourage large grazers, primarily wild horses and cows. Raptor perches will be constructed along the periphery of test sites to discourage concentration of small grazers.

e. Seedbed Preparation - Native vegetation will be scraped from the two experimental plot sites prior to substrate mixing and transported to adjacent areas for brush piling. Topsoil [about the upper 15 cm (6 inches) of the soil] and remaining subsoil will be stockpiled separately. The underlying bedrock, consisting of fractured calcareous sandstone, will be removed for a minimum thickness of 46 cm (18 inches), broken up and spread back over the area to simulate overburden. Subsoil and topsoil will then be replaced and graded for sowing. Final grade will approach 3:1.

As part of the site preparation process, an appropriate perimeter will be disturbed around each site, thus bringing the total area of disturbance per site to 1.7 ha (4.3 acrea). Materials (topsoil, subsoil, overburden) which are to be stockpiled temporarily (10 days maximum) will be located in the disturbed perimeter.

f. Sowing Methods - All seed will be drilled into the ground prior to mulching using a conventional grassland drill equipped with a single seed box and agitator. Drilling is preferred to broadcast seeding because less seed is required and greater moisture surrounds the seed during the critical stages of germination. Drilling will result in a spacing of 13 to 18 cm (~ 5 to 7 inches) between planting rows.

g. Species and Sowing Rates - A composite mixture of grasses, forbs and woody plants (Table 2.5.3-1) will be sown in preference to pure species stands. This mixture will consist of both introduced and native species. The introduced species, especially the wheatgrasses, are quite aggressive and are thus suited to rapid establishment and stabilization of the substrate. In contrast, the less aggressive native species are generally more successful in later stages of plant community development. The suitability of each species as wildlife food and cover, as soil stabilizers and as resistors of drought is presented in Table 2.5.3-1.

For purposes of the 1975 test, approximately 18 kg/ha (16 lbs/acre) of seed will be sown, with grasses and non-grasses (forbs and woody plants) in equal 9 kg (8.1 pound) proportions (Table 2.5.3-1).

h. Treatments - For the 1975 test, a total of 16 treatments will be applied using all possible combinations of the following variables:

- Mulch Type and Application (applied to cover approximately 70% of the soil surface)

  1. No mulch
  2. Hydromulch with wood fiber
  3. Straw mulch followed by crimping
  4. Straw mulch with netting

- Fertilizer Application (10-5-5 applied at a rate of 180 kg/ha (160 lbs/acre)

  1. No fertilizer
  2. Fertilizer at time of sowing (fall)
  3. Fertilizer at beginning of first full growing season
  4. Fertilizer at time of sowing and at beginning of first full growing season

i. Plant Response Parameters - The following plant response parameters will be measured for each treatment:

Table 2.5.3-1 Plant species suitability and recommended sowing rates kg/ha, lbs/acre of viable seed for species utilized in revegetation experiments on oil shale Tract C-a, Rio Blanco County, Colorado

Species	Suitability Rating[a]	1975 and 1976 Seeding Rates	
		kg/ha	lbs/acre
GRASSES			
Luna pubescent wheatgrass (Agropyron trichophorum var. luna)	2,4,6,8,9	1.7	1.5
Rosana western wheatgrass (Agropyron smithii var. Rosana)	4,5,8,9	1.7	1.5
Sodar streambank wheatgrass (Agropyron riparium var. Sodar)	3,5,8,9	1.7	1.5
Indian ricegrass (Oryzopsis hymenoides)	2,4,5,7,9	0.7	0.6
C-43 basin wild rye (Elymus cinereus var. C-43)	2,4,5,7,11	1.7	1.5
Green needlegrass (Stipa viridula)	2,5,7	1.7	1.5
FORBS			
Lewis flax (Linum lewisii)	2,5	0.6	0.5
Lutana cicer milkvetch (Astragalus cicer var. Lutana)	6,11	0.6	0.5
Utah sweetvetch (Hedysarum utahensis)	2,5	0.6	0.5
Madrid yellow sweetclover (Melilotus officinalis var. Madrid)	2,4,5,9,11	0.6	0.5
Rocky Mountain penstemon (Penstemon strictus var. bandera)	3,5,9	0.6	0.5
Scarlet globemallow (Sphaeralcea coccinea)	3,5,9	0.6	0.5
SHRUBS			
Big sagebrush (Artemisia tridentata)	2,5,9,10,11	0.2	0.2
Little rabbitbrush (Chrysothamnus viscidiflorus)	2,4,5,9,11	0.2	0.2
Bitterbrush (Purshia tridentata)	1,5,9,10,11	1.1	1.0
Mountain mahogany (Cercocarpus montanus)	1,5,10	0.6	0.5
Fourwing saltbush (Atriplex canescens)	1(seeds), 3, 4,5,9	1.1	1.0

Table 2.5.3-1 (Continued)

Species	Suitability Rating[a]	1975 and 1976 Seeding Rates	
SHRUBS (Continued)		kg/ha	lbs/acre
Winterfat (Eurotia lanata)	1,5,10	0.6	0.5
Rubber rabbitbrush (Chrysothamnus nauseosus)	3,5,9,10,11	0.6	0.5
Snowberry (Symphoricarpos oreophilus)	2,4,5,10	0.6	0.5
Squaw bush (Rhus trilobata)	2,4,5,9,10,11	0.6	0.5
TREES			
Utah juniper (Juniperus osteosperma)	3,5,9,10,11	0.1	0.1
Pinyon pine (Pinus edulis)	3,5,9,11	0.1	0.1

[a] Suitability ratings are:

1. Highly palatable
2. Moderately palatable
3. Unpalatable
4. Soil stabilizer
5. Native to Colorado[b]
6. Introduced species
7. Bunch grass
8. Sod grass
9. Drought resistant
10. Browse
11. Cover for game

[b] Underlining indicates species observed on site as part of the environmental baseline studies (Limnetics, Inc., June 1975).

1. Number of emerged seedlings per plot,
2. Number of surviving seedlings per plot,
3. Above-ground biomass,
4. Percent cover, and
5. Vigor

Table 2.5.3-2 gives the season of measurement for each parameter and the taxa involved. Photographs will be taken from fixed points in at least one replicate of each treatment at the times of data collection. A qualitative measure of alien species success will be obtained from in-situ counts of germination in buffer areas and from germination rates in soil samples collected from buffer areas and placed in the greenhouse.

j. Statistical Analysis - For the dependent variables of number of emerged seedlings, number of surviving seedlings and biomass at a particular site and in a particular year, the following analysis of variance is given:

Source of Variation	Degrees of Freedom	
Block	2	
Treatment	15	
Mulch		3
Fertilizer		3
Mulch x Fertilizer		9
Error A	30	
Species	22	
Treatment x Species	330	
Species x Mulch		66
Species x Fertilizer		66
Species x Fertilizer x Mulch		198
Error B	704	
Total	1103	

k. Environmental Data - Soils and climatic data will be collected periodically during the study period in order to attempt to establish more closely the causal links between plant response to varying treatments and the soil and climatic factors eliciting these responses. Soil moisture will be measured using standard gravimetric techniques from soil samples collected at 15 cm intervals throughout the soil column. Soil moisture determinations will be made periodically on three samples at each site during the growing season.

Soil samples will be collected at each site and pH, exchangeable sodium percentage, available nitrogen, phosphorus, and potassium, electrical conductivity, percent organic matter and concentrations of zinc and molybdenum will be determined with standard laboratory techniques.

Table 2.5.3-2 Plant response parameters measured in initial revegetation studies on oil shale Tract C-a, Rio Blanco County, Colorado, 1976-1978

Parameter	Time of Measurement	Taxa Involved
Number of emerged seedlings per plot	first spring following fall planting, i.e., beginning of first growing season	each planted species
Number of surviving seedlings per plot	end of first growing season	each planted species
Above-ground biomass (dry wt.)	end of third growing season	total seeded species, total alien species, individual seeded species contributing bulk of biomass
Percent cover	end of third growing season	each species
Vigor	end of first, second, and third growing seasons	each planted species

Two samples will be collected at each site during each growing season at 15 cm (6 inch) intervals.

1. Revegetation Trials in Years 2 and 3 - Revegetation experiments inititated in Year 2 (Fall 1976) and Year 3 (Fall 1977) will essentially duplicate those initiated in Year 1, except that a layer of Parahoe processed oil shale approximately 15 cm (6 inches) in thickness will be placed over the bedrock and below the simulated overburden. Comparison with Year 1 experiments should provide some insights into the effect of processed oil shale in revegetative success, particularly with regard to the influence of salt and heavy metals.

   Trials 2 and 3 will be conducted on one site (as opposed to two in Trial 1) and will be monitored for a minimum of 3 years as is the case with Trial 1.

   Additional experiments will be determined in conjunction with the Area Oil Shale Supervisor. They will depend in large on results obtained during the initial revegetation program and on the availability of actual processed oil shale.

2.5.5 Trace metals

Soils from two pits sampled by the Soil Conservation Service are currently being analyzed for trace metals. Results are not yet available.